ADLINK Fanless Embedded Computers

RUGGED DURABLE FUNCTIONAL

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ADLINK TECHNOLOGY INC.

Matrix

Vol. S121

ADLINK Fanless Embedded Computers

Your Trusted Embedded System Provider

Rugged, Reliable, and Flexible

ADLINK's revolutionary series of Matrix fanless embedded computers provide an optimal computing platform with expandable options to customers. These platforms are the result of combining ADLINK's expertise in x86 platform design, versatile I/O function development, and thermal design to push fanless systems to a higher standard, including a wide operating temperature, 5 Grms vibration, and cable-free durable structure.

With a sturdy hardware design, the Matrix MXC and MXE series are ideal for developing reliable embedded systems effortlessly and offering time-to-market solutions to mission-oriented industries. ADLINK takes the advantage of flexibility to offer diverse comprehensive I/O interfaces to meet requirements for a variety of industrial applications.

Matrix

Expandable Embedded Computers

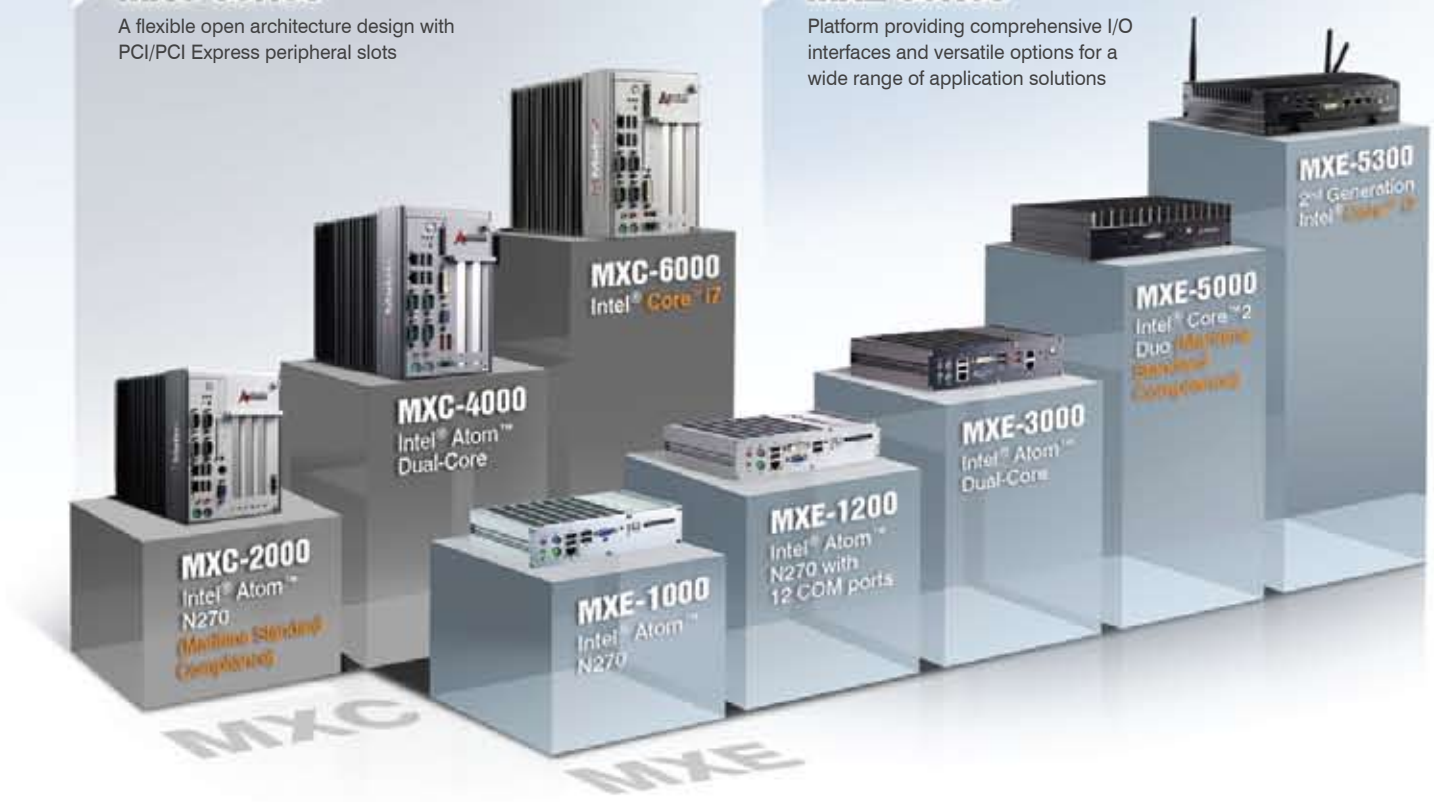
Integrated Embedded Computers

MXC series

A flexible open architecture design with PCI/PCI Express peripheral slots

MXE series

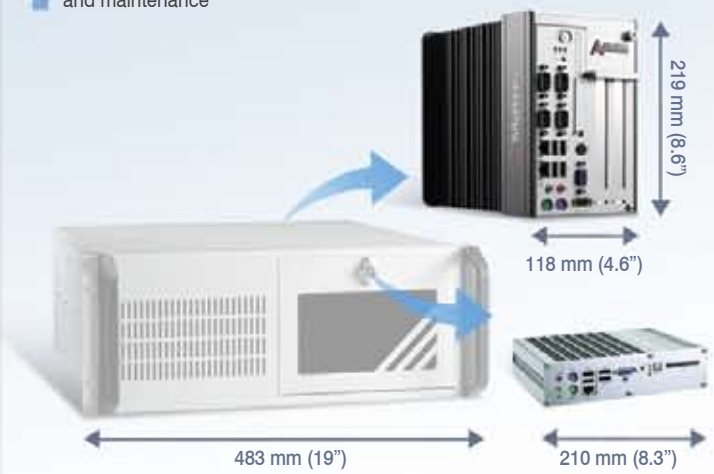
Platform providing comprehensive I/O interfaces and versatile options for a wide range of application solutions



Optimal Features of the Matrix Series

Compact

Smaller form-factor for easier installation and maintenance

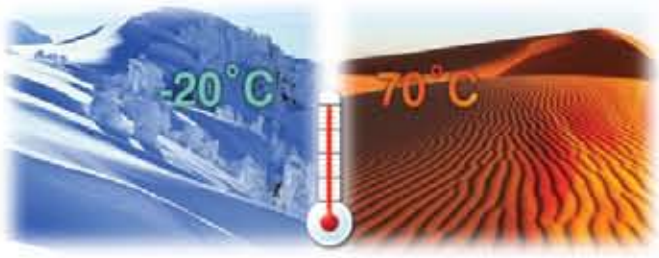


Fanless

Fanless design significantly extends MTBF to 100,000 hours and minimizes the maintenance cost.

Rugged

The Matrix is designed to operate in a -20 to 70°C wide temperature range and withstand up to 100 G shock and 5 Grms vibration, making it ideal for deployment in harsh environments.

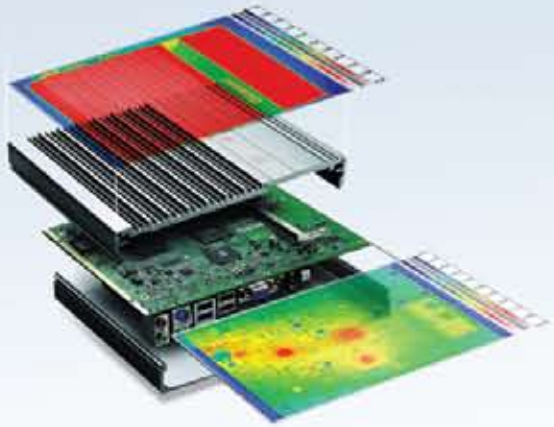


Note: Extending the operating temperature to -20°C to +70°C is optional and requires use of an industrial solid-state drive storage device.

Application-specific

By integrating ADLINK DAQ, DIO, motion and vision technologies, the Matrix can provide specific I/O functions on-board for your applications.

Unique Design of the Matrix Series



Complete Consideration for Heat Dissipation

Mechanical and electrical engineers worked from the early design stages of the Matrix to ensure the best conductive heat dissipation performance possible. All components, such as the CPU, chipset, memory, clock generator, MOSFET, and power choke, etc. generate heat and are thus placed on the top of the PCB and kept at a minimal distance from the aluminum case. Thus the shortest path of heat conduction and lowest thermal resistance can be provided to guarantee the thermal stability of the Matrix at a 70°C ambient temperature.

*This option guarantees cold boot of the system at -20°C and operation with 100% loading at 70°C.
The industrial solid-state drive storage option is required. Heat dissipation from inserted PCI/PCIe cards may affect thermal performance.

Cable-Free and User-friendly Mechanical Structure

The Matrix features an excellent cable-less design. All components and connectors are directly mounted on the PCB via SMT and DIP processes instead of cable connections. The result is an extremely strong and durable mechanical structure suitable for the harshest of environments. The Matrix MXC series—being an expandable embedded computer—also provides a very user-friendly design for system installation. You can open the chassis and install your PCI/PCIe card simply by loosening one screw. And, only four screws are used to access the hard disk drive. This mechanical design provides high reliability and durability and easy access for installation and maintenance.

Machine Automation Environment Monitoring

Wide Range and Reliable DC Power Input

We know you may need to deploy the Matrix anywhere. So, we designed the Matrix with wide range DC input to allow it to be powered everywhere. Regardless if there are 12 or 24 volts available at the site, or you have a 19 V laptop adapter handy, you can simply feed the power into the Matrix series and it will run. The Matrix is also ideal for use with solar power because of the great tolerance for the variation of solar panel output. The power circuitry of the Matrix was carefully designed with high-quality components (regulators, capacitors, and inductors) to supply reliable power under almost any circumstances.

High Tolerance Vibration and Shock Capability

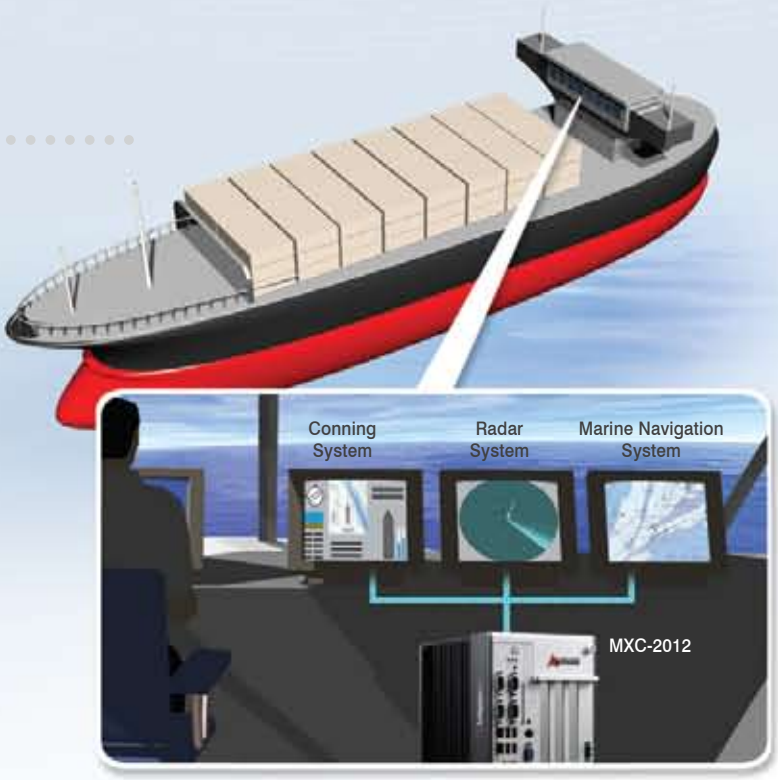
Designed for the customers looking for robust and reliable industrial platforms, the Matrix fanless embedded computers underwent high tolerance up to 50 G shock duration and 5 Grms vibration resistance for harsh environments, such as transportation applications.

State-of-the-art I/O Platform Controllers for Maritime Automation

Application

With the near-constant exchange of shipboard directives and responses taking place every day, precise information and communication are critical. To maximize efficiency of navigation and communication, and thereby profitability, focus on navigation automation control systems has increased dramatically.

Accordingly, ADLINK provides innovative and reliable machine-to-machine computer systems for maritime and offshore electronics. Integration of technology with acquired experience and expertise in measurement, automation, digital imagining, motion control and data acquisition into fanless embedded systems allows ADLINK to provide professional solutions and global services enabling customers to lead the field in maritime automation and intelligent transportation.



ADLINK Solution ▮ *Matrix MXC Series*

ADLINK understands the importance of securing aft bridge control in offshore service vessels (OSV) to heighten navigational performance and increase vessel lifetime. Matrix expandable computers (MXC) from ADLINK satisfy all navigation requirements, alarm and power management issues, and thruster control challenges by focusing on a machine-to-machine system of control.

The Matrix MXC series provides a comprehensive line of products and services to streamline every aspect of command, control, and communications in an aft bridge workstation. The Matrix MXC series also complies with such maritime classifications as IEC-60945 and DNV (Det Norske Veritas) to fulfill application requirements.

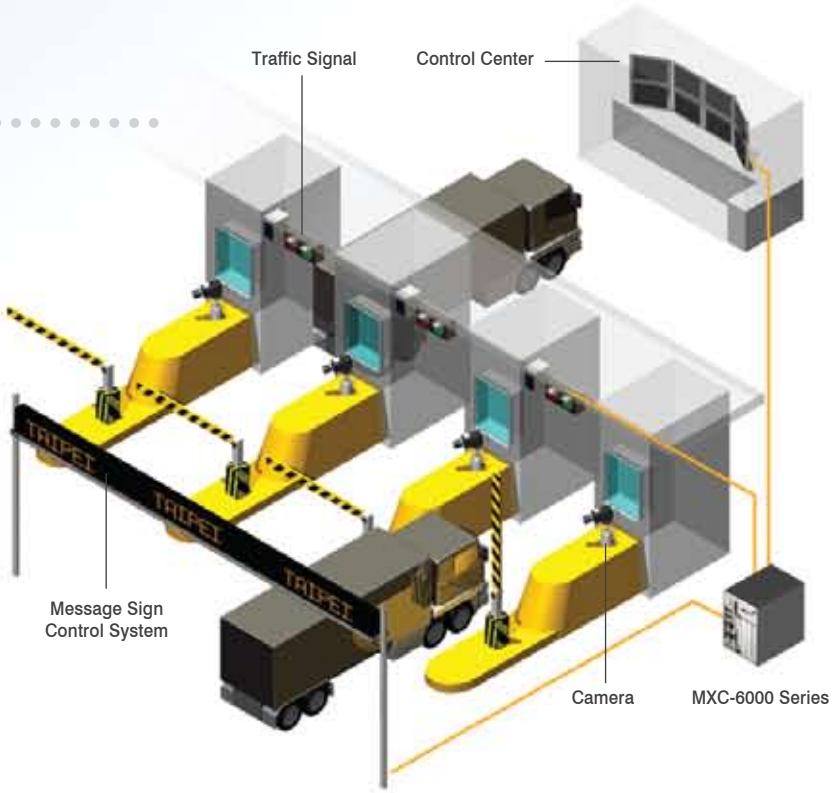
Electronic Highway Tollbooth and Surveillance Systems

Application

Tollbooth lanes are often utilized to allow motorists in single-occupant vehicles to access high-occupancy vehicle lanes. Tolls are collected either by manned tollbooths, automatic number plate recognition, or electronic toll collection systems.

The main function of a tollbooth lane is to identify, record, and control passage of vehicles, to carry out toll payments and transmit acquired information to monitoring and local toll plaza facilities. Toll payment information is monitored and aggregated at each toll plaza and reported to central administration for further custom processing.

Toll systems require an industrial platform integrated with serial communication cards to connect and control the systems, remit related data to the control center, and control barriers, read vehicle license plates, and control trigger settings via capture cards.



ADLINK Solution *Matrix MXC Series*

The MXC-6000 fanless expandable embedded system is perfectly suited for electronic toll gate and surveillance applications with high performance Intel® Core™ i7 Processor with superior graphic performance, two GbE ports, four serial ports and two PCI/PCIe expansion slots. All electronics are securely housed in a compact, rugged chassis with thermal cooling fins, for easy and dependable deployment, even in severe conditions.

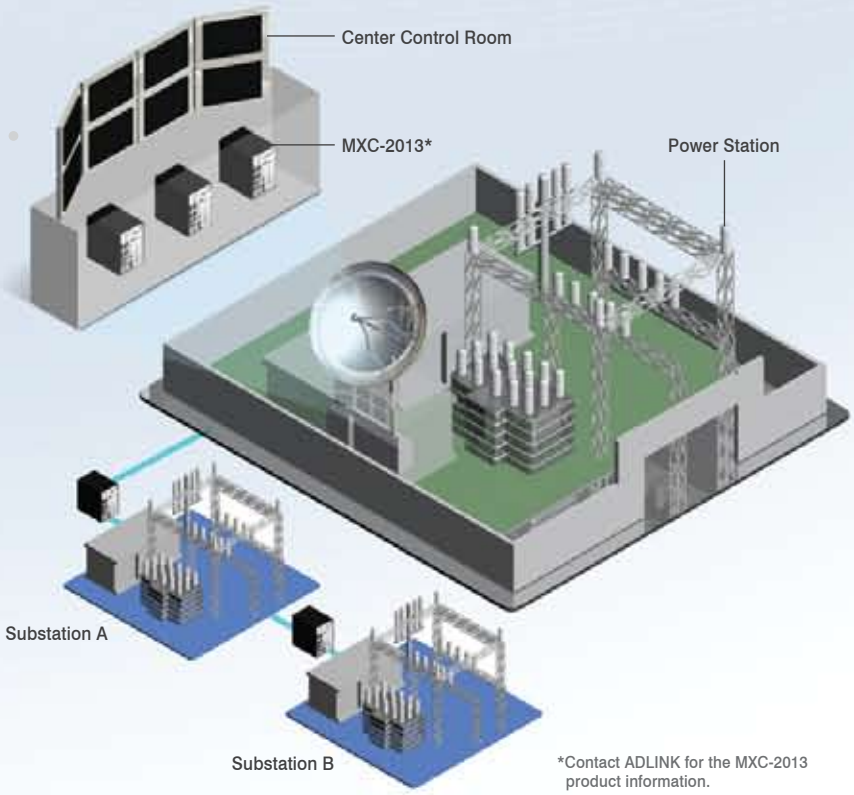
Each surveillance camera is connected to a 2/4-port PCI/PCIe video capture card or PoE frame grabber. Captured images transferred to system storage can be scaled down with application software. Entry systems are connected to the control center via Ethernet, and onboard serial ports or add-on serial communication cards enable reliable, high-speed serial communication.

Power Transmission and Distribution Systems

Application

In power substations, voltage generated elsewhere is converted from high to low or the reverse using transformers. In the area of transmission, equipment is used as a data concentrator and in distribution, for supervision, monitoring and control.

Some supervisory functions performed in the substation, such as communication of relay status and circuit breakers to central administration via Ethernet and verification of circuit breaker states, must be performed even in the event of a short circuit, blackout or other contingency.



*Contact ADLINK for the MXC-2013 product information.

ADLINK Solution ▮ *Matrix MXC Series*

The MXC-2000 provides guaranteed system stability and reliability when deployed in a power substation environment. The system design with one PCI and one PCIe slot offers maximum flexibility for system integration and expansion.

The wide input range of the AC/DC switching power supply meets the requirements of most power substation applications. Fanless, managed LANs, isolated DIO, dual power inputs, and rugged system housings all contribute to the MXC-2000's suitability for this type of application.

The MXC-2000 Series is further configurable for reliable operation in a -20 to 70°C operating temperature range, offering an optimal solution for applications subjected to harsh environments. (Contact ADLINK for the MXC-2013 product information)

AOI with Expandable Fanless Embedded Computers

Application

Automated optical inspection (AOI) is an automated visual inspection of a wide range of products, such as PCBs, LCDs, wafer, and automotive parts. It is commonly used in manufacturing processes because it is a non-contact test method and used for inspecting parts that have limited and known variations. These inspection devices all have some common attributes that affect capability, accuracy, and reliability. AOI is able to perform most of the visual checks performed previously by manual operators far more quickly and accurately.

In light of the increasing demands for AOI, ADLINK developed the Matrix MXC series of fanless embedded computers to provide a robust solution with optimal inspection strategy in order to achieve the best possible defect coverage, which optimizes the production processes and lower your maintenance cost by extending the MTBF (mean time between failure) of the system with its fanless and cable-less design.

ADLINK Solution ▮ *Matrix MXC Series*

The ADLINK Matrix MXC series is a configurable controller with fanless and cable-less design offers greater computing power for AOI applications. The MXC series features an Intel® processor to boost its performance with low power consumption. Leveraging a reliable fanless and durable cable-less design, the MXC series exhibits excellent dependability in harsh environments, where severe temperature variation and vibration may exist.

Featuring an expandable PCI and PCIe slots architecture, the MXC series provides the possibility to integrate off-the-shelf PCI/PCIe cards, such as ADLINK's PCIe frame grabbers and motion controllers. Combining ADLINK's comprehensive know-how and experience in industrial automation, the MXC series is the best choice for developing a rugged AOI application platform.

In addition, for some applications that required higher power consumption with PCI/PCIe cards installed, the MXC-4000 and 6000 series provides an optional hot-pluggable fan module for greater heat dissipation. This ingenious mechanical design features a cable-less structure which dramatically improves thermal stability while using PCI/PCIe cards.

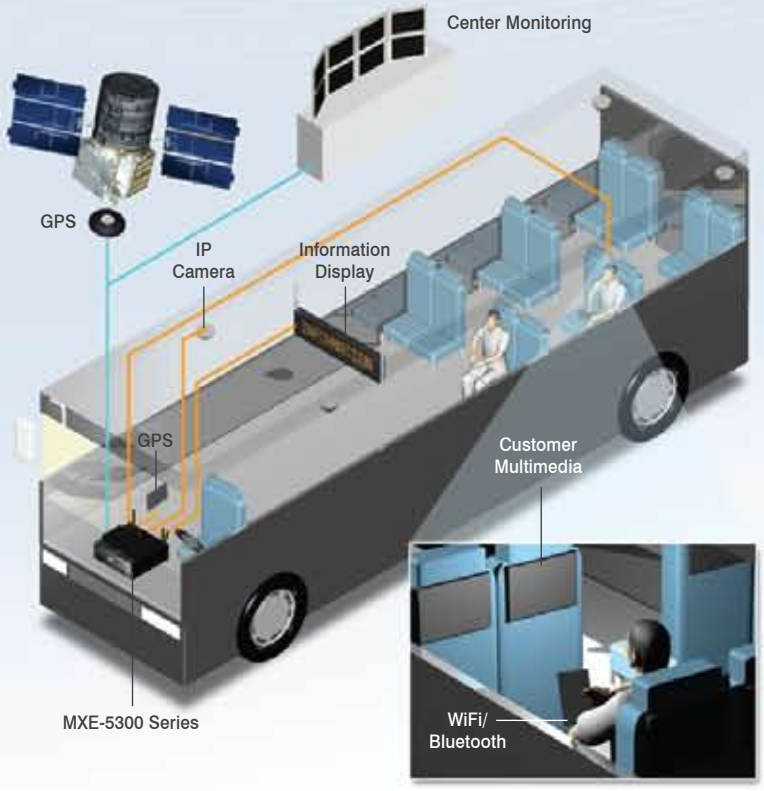
In-vehicle Multimedia and Surveillance Technologies

Application

The popularity of in-vehicle multimedia access is increasing with the evolution of digital content and distances travelled. Mass transit system or long-distance bus users can experience improved quality of travel when accompanied by music, video, and even interactive internet content. Also increasing in desirability is personal access to the internet. Wireless AP can be implemented on public transport to provide wireless internet services to passengers.

In addition, with growing concerns over security, the demand for in-vehicle surveillance technologies is also expanding. With the convenience and cost-effectiveness of Ethernet networks and wireless technologies, IP surveillance systems can be implemented on buses or trains to enhance passenger safety, fleet management, and traffic monitoring, especially in combination with vehicle positioning provided by GPS, delivering real-time driving status to operators and system administrators.

Given the limited space available in vehicles, meeting the various requirements of such systems is clearly a challenge. In-vehicle systems must provide multimedia content, along with data acquisition from both inside and outside the vehicle, with transmission of the data to centralized control facilities. Finally, the system must operate effectively under the conditions unique to moving vehicles, including high frequency of vibration and shock and severe temperatures.



ADLINK Solution ▮ *Matrix MXE Series*

With sophisticated mechanical design and discreet circuit layout, the ADLINK Matrix series offers a rugged platform suitable for severe operating environments. The Matrix series packs versatile I/O application solutions into minimized form factors, to meet the needs of a huge variety of applications. Matrix provides a full spectrum of fanless embedded computers to fulfill every application-specific task.

The Matrix MXE series accommodates powerful Intel® processors to fulfill delivery of digital content while processing surveillance data received through multiple GbE Ethernet ports. With the flexibility of an internal mini PCIe module, the Matrix-E series takes full advantage of a diversity of wireless protocols such as 3G/UMTS/WiFi and Bluetooth.

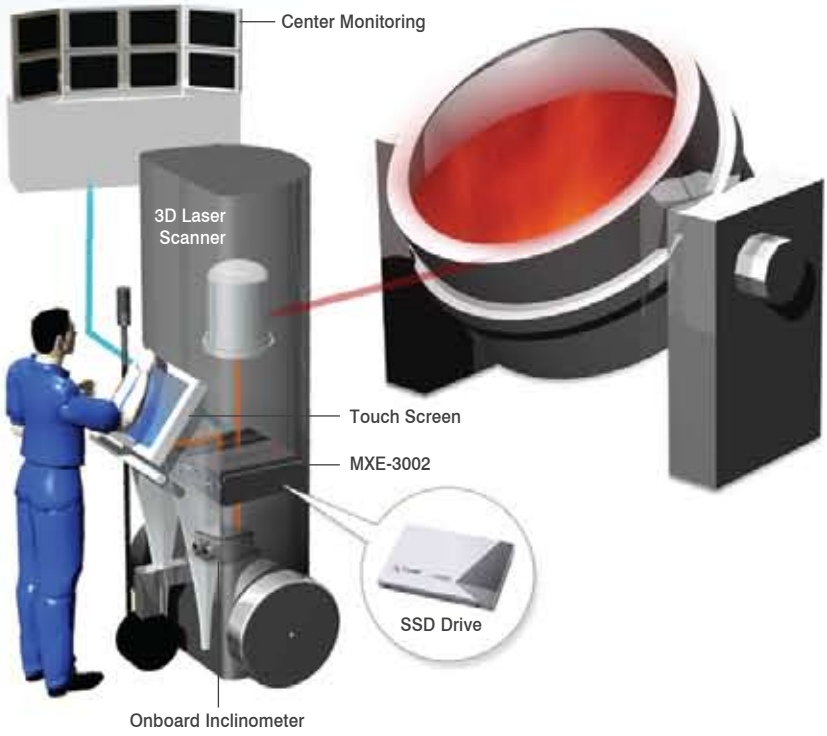
Multifunction Mobile Measurement Platform Deployed in Extreme Environments

Application

In factories or fabrication plants, mobile platforms in use require both processor performance and requisite I/O functions, but also reliability to provide long-term, dependable service despite the harshness of the environment.

In steel fabrication, molten metals are processed in ceramic-lined steel vessels. The ceramic lining wears, corrodes, and spalls with of the intense heat generated by iron process. A method is necessary to determine the thickness of the remaining ceramic lining, with the resulting information dictating replacement or repair, as required. The primary component utilized here is a 3D computer-controlled laser scanner

These mobile platforms must be able to withstand the effects of continuous high temperatures, formidable levels of airborne particulate matter, and vibration generated by the process. Fan-cooling of the computers is ineffective, resulting in catastrophic failures of both hardware and software components.



ADLINK Solution | *Matrix MXE Series*

ADLINK's Matrix MXE series provides a highly reliable platform fully able to accomplish required tasks in severe environments presenting such conditions as high temperatures, concentrated airborne particulates, and continuous vibration, thanks to a fanless and cablefree design. It accommodates various x86 based processors to satisfy all kinds of computing requirements. With multiple I/O functions, merging the platform into the system is easily accomplished. The Matrix MXE Series represents a superior choice for reliable computing platform in severe environments.

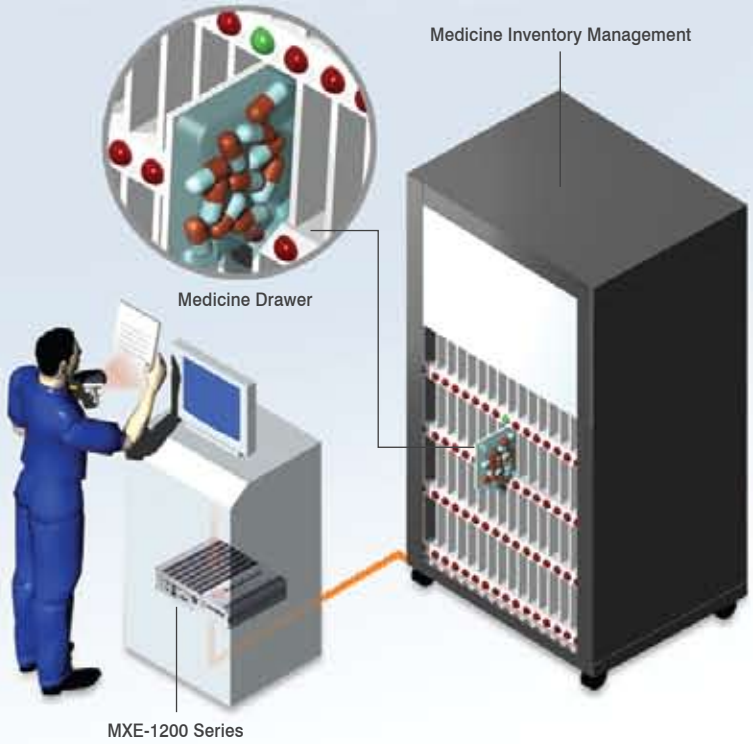
The Future of Medication Management & Pharmacy Automation

Application

The medication management process is complex. When people are delivering thousands of doses to the patients every day, error and inefficiency are inevitable. In an effort to improve clinical efficiency and profitability, hospitals of every size are taking a closer look at medication management. Many have found that the traditional path that medication takes from the pharmaceutical distribution center to the pharmacy to the patient is both error-prone and inefficient, which potentially delays treatment, increases risk, drives up costs, and complicates efforts to meet regulatory requirements.

Yet in many hospitals, these long-standing challenges have turned out to be opportunities. Pharmacists, nurses and administrators across the country have found that automating the medication-use process not only helps solve these issues, it also can make a measurable improvement in clinical, operational, and financial results.

ADLINK is committed to help our customers develop a system together to break the harmful cycle of medication errors and simplifying medication management to bring safety and practice together in measurable ways. With proven capabilities including medication dispensing, order management, and point of care verification, we can positively impact patient safety across the entire continuum of care.



ADLINK Solution ▮ *Matrix MXE Series*

The Matrix series of embedded computers from ADLINK addresses these medication management challenges by focusing on the security of the process of filling, delivering, and removing medications at an automated dispensing system.

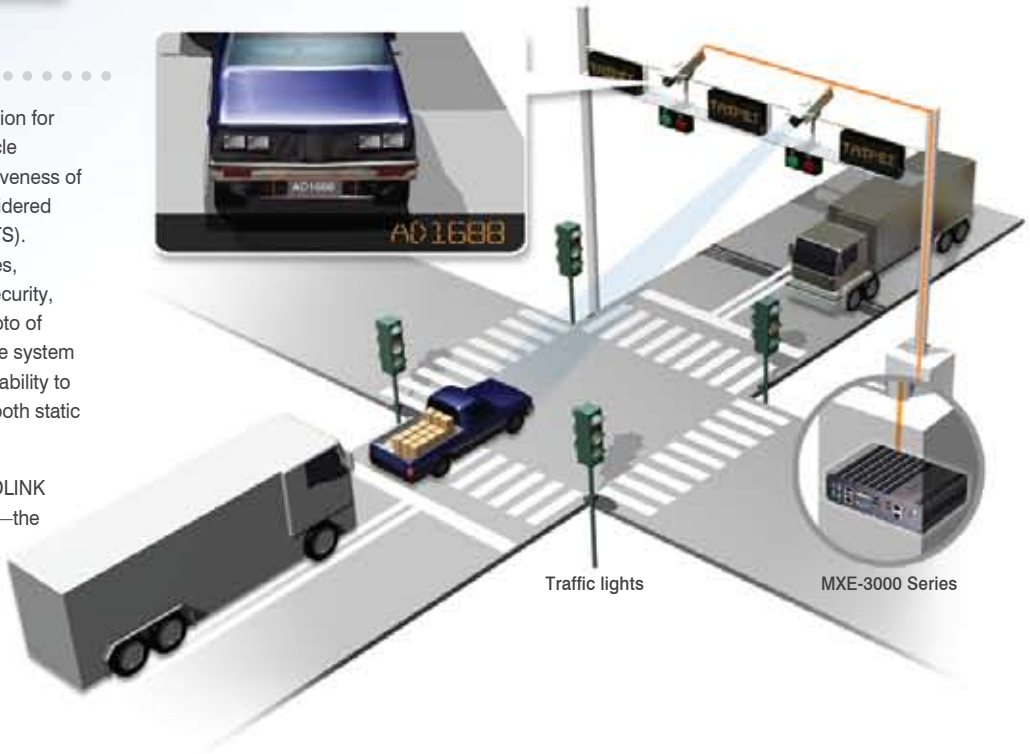
The Matrix E series provides a comprehensive line of products and services to streamline every aspect of medication management facilities. The fanless and cable-less structure of the Matrix MXE-1200 series provides extensive durability for long-term use. The design of the system is extremely flexible to meet the needs of a wide variety of applications, including pharmacy management.

Using an Integrated Fanless Embedded Computer for a Vehicle Identification System

Application

A vehicle identification system (VIS) is a solution for automatic licence plate recognition and vehicle identification that helps to increase the effectiveness of modern security systems, which is now considered part of an intelligent transportation system (ITS). VIS technology captures vehicle licence plates, analyzes images, and increase the level of security, based on a multi-criteria comparison of a photo of the vehicle and a photo stored in storage. The system needs to provide long-term durability and reliability to operate effectively day and night to monitor both static and moving vehicles.

In light of the increasing demands for VIS, ADLINK developed a series of embedded computers—the Matrix MXE series—to provide a robust solution with versatile integrated I/O options suitable for many different fields, such as access control to public or private car lots, logistics, roads and motorways, police force applications and automatic detection of traffic violations.



ADLINK Solution ▮ *Matrix MXE Series*

The ADLINK MXE series is an exceptionally rugged embedded controller for operating in harsh environments. Its -20 to 70°C temperature range allows it to operate outdoors in both hot summer days and cold winter nights. The Matrix can also be deployed on vehicles as it can withstand 5 Grms vibration. And, its fanless and cable-less structure ensures extensive durability for long-term usage.

The Matrix MXE series features an Intel® embedded processor to deliver adequate performance at low-power. The MXE series also integrates versatile generic and special purpose I/O features to support a wide variety of applications. The on-board Gigabit Ethernet is designed for connecting cameras for surveillance and image recognition applications, while its COM ports meet the requirements in most machine automation and facility management applications.

Combining rugged design and integrated I/O functions, the ADLINK MXE series offers the most versatile choice for your applications.

Selection Guide

Matrix MXC Series-Expandable Embedded Computers

	MXC-2000 Series			MXC-4000 Series
Model Name	**MXC-2002**	**MXC-2011**	**MXC-2012 (Maritime compliance)**	**MXC-4002D**
System				
Processor	Intel® Atom™ N270 1.6 GHz	Intel® Atom™ N270 1.6 GHz	Intel® Atom™ N270 1.6 GHz	Intel® Atom™ D510 1.66 GHz
Chipset	Intel® 945GSE+ ICH7-M	Intel® 945GSE+ ICH7-M	Intel® 945GSE+ ICH7-M	Intel® ICH8-M
Memory	1 GB DDR2 533 MHz SODIMM module	1 GB DDR2 533 MHz SODIMM module	1 GB DDR2 533 MHz SODIMM module	1 GB DDR2 667 MHz SODIMM module
I/O Interface				
Expansion Slots	2 PCI slots	1 PCI slot and 1 PCIe slot	2 PCI slot and 1 PCIe x4 slot	2 PCI slots
Ethernet	2 GbE ports (Realtek® 8111C)	2 GbE ports (Realtek® 8111C)	2 GbE ports (Realtek® 8111C)	2 GbE ports (Intel® 82574L)
Serial Port COM1 & COM2	2 RS-232/422/485	2 RS-232/422/485	2 RS-232/422/485	2 RS-232/422/485
COM3 & COM4	2 RS-232	2 RS-232	2 RS-232	2 RS-232
USB Port	4	4	4	4
Watchdog Timer	√	√	√	√
Storage				
SATA HDD	2.5" HDD/SSD installation	2.5" HDD/SSD installation	2.5" HDD/SSD installation	2.5" HDD/SSD installation
CompactFlash	2 Type II CF sockets	2 Type II CF sockets	2 Type II CF sockets	1 Type II CF socket
Environment				
Operating Temperature*	Standard: 0°C to 60°C (w/ HDD) Extended option: -20°C to 70°C (w/ industrial SSD)	Standard: 0°C to 60°C (w/ HDD) Extended option: -20°C to 70°C (w/ industrial SSD)	Standard: 0°C to 60°C (w/ HDD) Extended option: -20°C to 70°C (w/ industrial SSD)	Standard: 0°C to 55°C (w/ HDD) Extended option: -10°C to 60°C (w/ industrial SSD)
General				
Power Supply	9-32 V_{DC}	9-32 V_{DC}	18-36 V isolation DC input	9-32 V_{DC}
Page No.	19	19	19	17

	MXC-4000 Series	MXC-6000 Series	
Model Name	**MXC-4011D**	**MXC-6101D**	**MXC-6201D**
System			
Processor	Intel® Atom™ D510 1.66 GHz	Intel® Core™ i7-620LE 2.0 GHz	Intel® Core™ i7-620LE 2.0 GHz
Chipset	Intel® ICH8-M	Intel® QM57	Intel® QM57
Memory	1 GB DDR2 667 MHz SODIMM module	2 GB DDR3 800/1066 MHz SODIMM module	2 GB DDR3 800/1066 MHz SODIMM module
I/O Interface			
Expansion Slots	1 PCI slot and 1 PCIe slot	2 PCI slots	1 PCI slot and 1 PCIe x4 slot
Ethernet	2 GbE ports (Intel® 82574L)	2 GbE ports (2 Intel® 82574L)	2 GbE ports (2 Intel® 82574L)
Serial Port COM1 & COM2	2 RS-232/422/485	2 RS-232/422/485	2 RS-232/422/485
COM3 & COM4	2 RS-232	2 RS-232	2 RS-232
USB Port	4	4 (external), 1 (internal)	4 (external), 1 (internal)
Watchdog Timer	√	√	√
Storage			
SATA HDD	2.5" HDD/SSD installation	2.5" HDD/SSD installation	2.5" HDD/SSD installation
CompactFlash	1 Type II CF socket	1 external Type II CF socket, 1 internal Type II CF socket	1 external Type II CF socket, 1 internal Type II CF socket
Environment			
Operating Temperature*	Standard: 0°C to 55°C (w/ HDD) Extended option: -10°C to 60°C (w/ industrial SSD)	Standard: 0°C to 50°C (w/ HDD) Extended option: -10°C to 60°C (w/ industrial SSD)	
General			
Power Supply	9-32 V_{DC}	9-32 V_{DC}	9-32 V_{DC}
Page No.	17	15	15

*Heat dissipation from inserted PCI/PCIe cards may affect thermal performance.

Selection Guide

Matrix MXE Series-Integrated Embedded Computers

	MXE-1000 Series			MXE-1200 Series	
Model Name	**MXE-1005**	**MXE-1010**	**MXE-1020**	**MXE-1212/232**	**MXE-1212/422**
System					
Processor	Intel® Atom™ N270 1.6 GHz	Intel® Atom™ N270 1.6 GHz	Intel® Atom™ N270 1.6 GHz	Intel® Atom™ N270 1.6 GHz	Intel® Atom™ N270 1.6 GHz
Chipset	Intel® 945GSE+ ICH7-M	Intel® 945GSE+ ICH7-M	Intel® 945GSE+ ICH7-M	Intel® 945GSE+ ICH7-M	Intel® 945GSE+ ICH7-M
Memory	1 GB DDR2 533 MHz SODIMM module	1 GB DDR2 533 MHz SODIMM module	1 GB DDR2 533 MHz SODIMM module	1 GB DDR2 533 MHz SODIMM module	1 GB DDR2 533 MHz SODIMM module
I/O Interface					
Ethernet	1 GbE port (Realtek® 8111C)	3 GbE ports (Realtek® 8111C+Intel® 82574) (support teaming function)	1 GbE port (Realtek® 8111C)	1 GbE port (Realtek® 8111C)	1 GbE port (Realtek® 8111C)
Serial Port COM1 & COM2	2 RS-232/422/485	2 RS-232/422/485	2 RS-232/422/485	2 RS-232/422/485 by DB9 connectors	2 RS-232/422/485 by DB9 connectors
Serial Port COM3 & COM4	2 RS-232	2 RS-232	2 RS-232	2 RS-232 by DB9 connectors	2 RS-232 by DB9 connectors
Serial Port COM5 - COM12	–	–	–	8 RS-232 by DB62 connector	8 RS-422 by DB62 connector
USB Port	4	4	4	4	4
Watchdog Timer	√	√	√	√	√
Storage					
SATA HDD	2.5" HDD/SSD installation	2.5" HDD/SSD installation	2.5" HDD/SSD installation	2.5" HDD/SSD installation	2.5" HDD/SSD installation
CompactFlash	1 Type I CF socket	1 Type I CF socket	1 Type I CF socket	1 Type II CF socket	1 Type II CF socket
Environment					
Operating Temperature*	Standard: 0°C to 50°C (w/ HDD) Extended option: -20°C to 70°C (w/ industrial SSD)			Standard: 0°C to 50°C (w/ HDD) Extended option: -20°C to 70°C (w/ industrial SSD)	
General					
Power Supply	6-36 V_{DC}	6-36 V_{DC}	6-36 V_{DC}	6-36 V_{DC}	6-36 V_{DC}
Page No.	29	29	29	27	27

	MXE-1200 Series	MXE-3000 Series	MXE-5000 Series		MXE-5300 Series
Model Name	**MXE-1212/485**	**MXE-3002**	**MXE-5104M**	**MXE-5104 (Maritime compliance)**	**MXE-5300**
System					
Processor	Intel® Atom™ N270 1.6 GHz	Intel® Atom™ D510 1.66 GHz	Intel® Core™2 Duo P8400 2.26 GHz		Intel® Core™ i7-2710QE / i5-2510E / i3-2330E CPU
Chipset	Intel® 945GSE+ ICH7-M	Intel® ICH8-M	Intel® GM45+ ICH9-M		Intel® QM67
Memory	1 GB DDR2 533 MHz SODIMM module	1 GB DDR2 667 MHz SODIMM module	2 GB DDR3 SODIMM		4 GB DDR3 1066 MHz SODIMM module
I/O Interface					
Ethernet	1 GbE port (Realtek® 8111C)	3 GbE ports (1 Realtek® 8111C + 2 Intel® 82574L)	4 GbE ports (2 Intel® 82574L + 2 Realtek® 8111C)	4 GbE ports (2 Intel® 82574L + 2 Realtek® 8111C)	4 GbE ports (2 Realtek® 8111C + 1 Intel® 82574IT + 1 82579 LM
Serial Port COM1 & COM2	2 RS-232/422/485 by DB9 connectors	2 RS-232/422/485	2 RS-232	2 RS-232	2 RS-232/422/485
Serial Port COM3 & COM4	2 RS-232 by DB9 connectors	2 RS-232	2 RS-232/422/485	2 RS-232/422/485	2 RS-232
Serial Port COM5 - COM12	8 RS-485 by DB62 connector	–	–	–	–
USB Port	4	6	6	6	4 (USB 2.0) & 2 (USB 3.0)
Watchdog Timer	√	√	√	√	√
Storage					
SATA HDD	2.5" HDD/SSD installation	2.5" HDD/SSD installation	2.5" HDD/SSD installation	2.5" HDD/SSD installation	2.5" HDD/SSD installation
CompactFlash	1 Type II CF socket	1 Type II CF socket	-	-	1 CFast socket
Environment					
Operating Temperature*	Standard: 0°C to 50°C (w/ HDD) Extended option: -20°C to 70°C (w/ industrial SSD)	Standard: 0°C to 50°C (w/ HDD) Extended option: -20°C to 70°C (w/ industrial SSD)	Standard: 0°C to 50°C (w/HDD) Extended option: -20°C to 70°C (w/industrial SSD)		Standard: 0°C to 50°C (w/HDD) Extended Temperature: -20°C to 70°C (w/ industrial SSD or CFast)
General					
Power Supply	6-36 V_{DC}	9-32 V_{DC}	9-24 V_{DC}	24V isolation DC input	9-32 V_{DC}
Page No.	27	25	23	23	21

*Extending the operating temperature to -20 to 70°C (or -10 to 60°C) is optional and requires use of an industrial solid-state drive storage device.

MXC-6000 Series

Powerful Intel® Core™ i7 Fanless Expandable Embedded Computer with PCI/PCIe Slots

Introduction

The Matrix MXC-6000 series of powerful fanless, expandable embedded computers feature the new Intel® Core i7 2.0 GHz processor for maximized computing. The MXC-6000 inherits its exceptional fanless and cable-free design from ADLINK's existing Matrix C series.

The MXC-6000 series' Intel® Core i7 2.0 GHz processor and Intel® QM57 chipset deliver a level of performance ideal for image and vision measurement and automation applications. PCI and PCIe slots allow integration of off-the-shelf PCI/PCIe cards for development of configurable application platforms. 16 built-in isolated DIO channels enable standardized industrial control. A DVI-I connector output on the front panel allows direct connection to a LCD panel, and one eSATA port supports storage expansion or hot-swapping SATA drives.

Leveraging a reliable fanless and durable cable-free design, the MXC-6000 series exhibits excellent dependability in harsh environments, where severe temperature variation and vibration may exist. The MXC-6000 series provides an optional hot-pluggable fan module to dissipate heat generated within the system when high power consumption PCI/PCIe cards are installed. This inventive mechanical design retains a cable-free structure which dramatically improves thermal stability when PCI/PCIe cards are installed.

The MXC-6000 also provides an USB 2.0 port internally located on a riser card, enabling heightened reliability for secure applications, with license keys or password encryption on an internal USB dongle dramatically improve system security. Combining a reliable design with more computing power and innovative features, the Matrix MXC-6000 series is the optimal choice on which to base any rugged application system.

Combining a reliable design with more computing power and innovative features, the Matrix MXC-6000 series is the optimal choice on which to base any rugged application system.

*Extending the operating temperature to -10°C to +60°C is optional and requires use of an industrial solid-state drive storage device. Heat dissipation from inserted PCI/PCIe cards may affect thermal performance

Features

- Intel® Core i7-620LE 2.0 GHz processor + Intel® QM57 chipset
- Configurable, providing PCI and PCIe x4 slots
- Rugged, -10°C to 60°C fanless operation*
- Built-in 9 VDC to 32 VDC wide-range DC power input
- VGA+DVI-D display by DVI-I connector
- Dual 1000/100/10 Mbps Ethernet ports, 2 RS-232 ports and 2 software-selectable RS-232/422/485 ports
- USB 2.0 port internally on riser card, built-in 16-CH isolated DI and 16-CH isolated DO
- RAID 0, 1 function available through 2 internal SATA-connected HDD or one internal SATA-connected HDD and one external eSATA-connected HDD

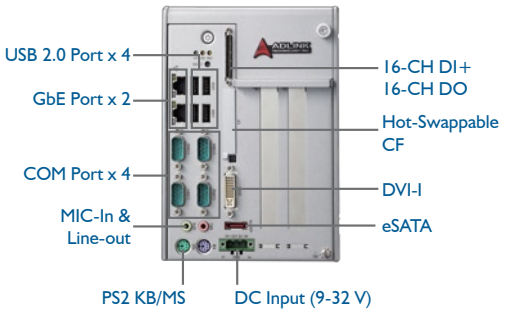
Applications

- Machine Automation
- Image & Vision Measurement
- Factory Control
- Test Instrumentation
- Safety Surveillance

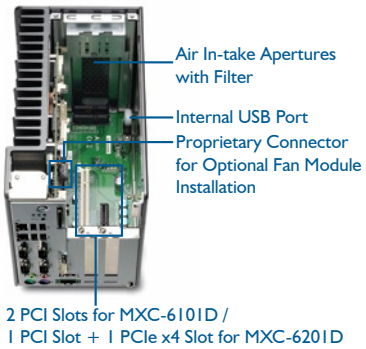
Software Support

- Windows® XP / XP Embedded / 7, INtime®*, Linux*
  *Linux Distribution by Request
  *Custom BIOS is necessary to support INtime®

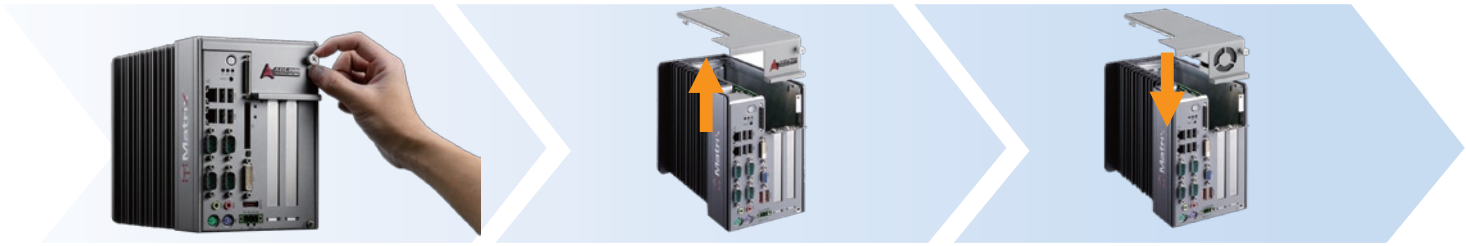
■ MXC-6000 Series Front Panel



■ Inside of the MXC-6000 Series

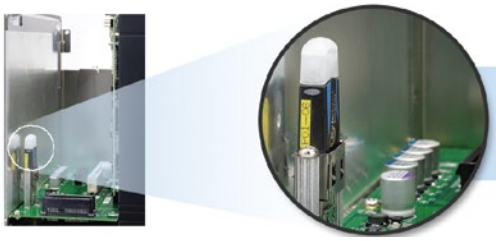

Air In-take Apertures with Filter
Internal USB Port
Proprietary Connector for Optional Fan Module Installation
2 PCI Slots for MXC-6101D / 1 PCI Slot + 1 PCIe x4 Slot for MXC-6201D

■ Easy-to-install Hot-pluggable Fan Module



1. Undo the thumbscrew by hand
2. Withdraw the thumbscrew and remove the top cover
3. Replace it by plugging the hot-pluggable fan module cover into the fan connector on CPU board

■ A More Reliable Design of Internal USB Port



The Matrix internal USB 2.0 port provides increased application security with connectivity for license keys or password encryption on USB dongle.

Specifications

Model Name	MXC-6101D	MXC-6201D
System Core		
Processor	Intel® Core i7-620LE 2.0 GHz CPU	
Chipset	Intel® QM57	
Video	VGA+DVI display by DVI-I connector • Analog CRT, supports QXGA (2048 x 1536) resolution • DVI-I 1.0 (DVI + VGA) (with external cable for connecting DVI-I connector to DVI-D and VGA device) • Optional 48-bit LVDS (by Internal box header)	
Memory	2 GB DDR3 800/1066 MHz SODIMM module (Max. capacity 4GB SODIMM module option)	
I/O Interface		
Expansion Slots	2 PCI slots	1 PCI slot and 1 PCIe x4 slot
Ethernet	2 GbE ports (2 Intel® 82574L)	
Serial Port	2 software-programmable RS-232/422/485 (COM1 & COM2) 2 RS-232 (COM3 & COM4)	
USB	4 USB 2.0 ports (external), 1 USB 2.0 port (internal)	
Audio	1 mic-in and 1 line-out	
KB/MS	1 PS/2 keyboard and 1 PS/2 mouse	
DIO	16-CH isolated DI + 16-CH isolated DO	
Power Supply		
DC Input	AT/ATX, built-in 9-32 VDC wide-range DC power input 3P pluggable connector with latch (GND, V-, V+)	
AC Input	Optional 100 W external AC-DC adapter for AC input	
Storage Device		
SATA HDD	On-board SATA port for 2.5" HDD/SSD installation Support SATA RAID 0, 1	
CompactFlash	1 external type II CompactFlash socket 1 internal type II CompactFlash socket	
eSATA	1 eSATA interface connector for external storage expansion	
Mechanical		
Optional Fan Module	Optional hot-pluggable fan module for dissipating heat generated by PCI/PCIe card	
Dimensions	130 mm (W) x 225 mm (D) x 183 mm (H) (5.1" x 8.9" x 7.2")	
Weight	3.5 kg (7.72 lbs)	
Mounting	Wall-mount kit	
Environmental		
Operating Temperature*	Standard: 0°C to 50°C (w/HDD) Extended option: -10°C to 60°C (w/industrial SSD)	
Storage Temperature	-40°C to 85°C (excl. HDD/SSD/CF)	
Humidity	~95% @ 40°C (non-condensing)	
Vibration	Operating, 5 Grms, 5-500 Hz, 3 axes (w/ CF or SSD) Operating, 0.5 Grms, 5-500 Hz, 3 axes (w/ HDD)	
Shock	Operating, 50 G, Half sine 11 ms duration (w/ CF or SSD)	
EMC	CE and FCC Class A	

*Without PCI/PCIe card installation.

Ordering Information

Model Name	Description	PCI	PCIe x4	GbE	eSATA	COM	USB	Memory	DIO
MXC-6101D	Intel® Core i7-620LE 2.0 GHz fanless expandable embedded computer	2	0	2	1	4	5	2 GB DDR3	16 DI+16 DO
MXC-6201D	Intel® Core i7-620LE 2.0 GHz fanless expandable embedded computer	1	1	2	1	4	5	2 GB DDR3	16 DI+16 DO

Optional Accessories

MXC-6000 Optional Fan Module	Hot-pluggable fan module for the MXC-6000 series
4 GB DDR3 upgrade	Upgrade to 4 GB DDR3 memory
320 GB HDD option	Factory-installed SATA hard disk drive (0 to 60°C)
32 GB SSD option	Factory-installed 32 GB SATA solid-state drive (0 to 70°C)
8 GB industrial SSD option	Factory-installed 8 GB industrial-grade SATA solid-state drive (-40 to 85°C)
100 W AC-DC adapter	100 W industrial-grade AC-DC adapter (-20 to 70°C)
DVI-I to VGA&DVI-D cable	External cable for connecting DVI-I to DVI-D and VGA devices
Auxiliary power cable	Auxiliary power cable for providing PCI and PCIe card external power suppliers
Extended Temperature Option*	Optional Screening to extend the operating temperature of the MXC-6000 series to -10°C to 60°C

*This option guarantees cold boot of the system at -10°C and operation with 100% loading at 60°C. The industrial solid-state drive storage option is required.

MXC-4000 Series

Intel® Atom™ Dual-Core Fanless Expandable Embedded Computer with PCI/PCIe Slots

Introduction

The Matrix MXC-4000 series is a fanless, expandable embedded computer based on the Intel® Atom™ D510 dual-core processor to offer greater computing power for your applications. The MXC-4000 inherits its exceptional fanless and cable-less design from existing Matrix C series, with the addition of innovative features, such as an eSATA interface, a LVDS output, and a hot-pluggable fan option.

The MXC-4000 series features an Intel® Atom™ D510 dual-core 1.66 GHz processor to boost its performance to almost twice that of the Atom™ N270 platform, while maintaining the same overall power consumption. Its PCI and PCIe slots give you the possibility to integrate off-the-shelf PCI/PCIe cards and develop a configurable application platform. Built-in isolated DIO channels are provided for general industrial control. Its LVDS output on the front panel allows you to directly connect to a LCD panel. The MXC-4000 series also provides two eSATA ports to enable the capability of either expanding storage capacity or using hot-swappable SATA drives.

Leveraging a reliable fanless and durable cable-less design, the MXC-4000 series exhibits excellent dependability in harsh environments, where severe temperature variation and vibration may exist. The MXC-4000 series provides an optional hot-pluggable fan module to dissipate heat generated within the system when high power consumption PCI/PCIe cards are installed. This ingenious mechanical design retains a cable-less structure which dramatically improves thermal stability when PCI/PCIe cards installed.

Combining a reliable design with more computing power and innovative features, the Matrix MXC-4000 series is the optimal choice to base your rugged application system on.

Features

- Intel® Atom™ D510 1.66 GHz processor + ICH8-M chipset
- Configurable, providing PCI and PCIe slots
- Rugged, -10°C to 60°C fanless operation*
- Built-in 9 VDC to 32 VDC wide-range DC power input
- VGA + LVDS independent dual display
- Dual 1000/100/10 Mbps Ethernet ports
- Two RS-232 ports and two software-selectable RS-232/422/485 ports
- Two eSATA ports for storage expansion
- Built-in 12-CH isolated DI and 12-CH isolated DO

Applications

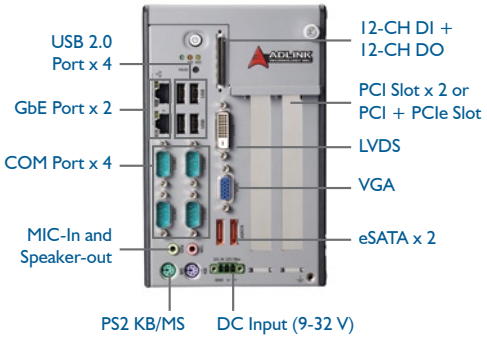
- Machine Automation
- Intelligent Transportation
- Factory Control
- Test Instrumentation
- Safety Surveillance
- Building Automation

Software Support

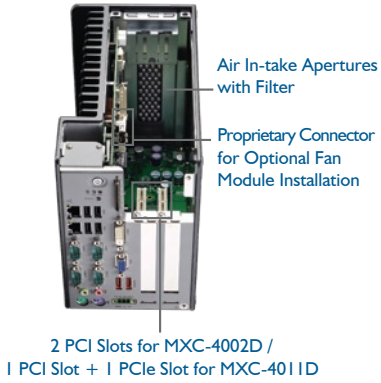
- Windows® XP / XP Embedded / 7, Linux*

*Linux Distribution by Request

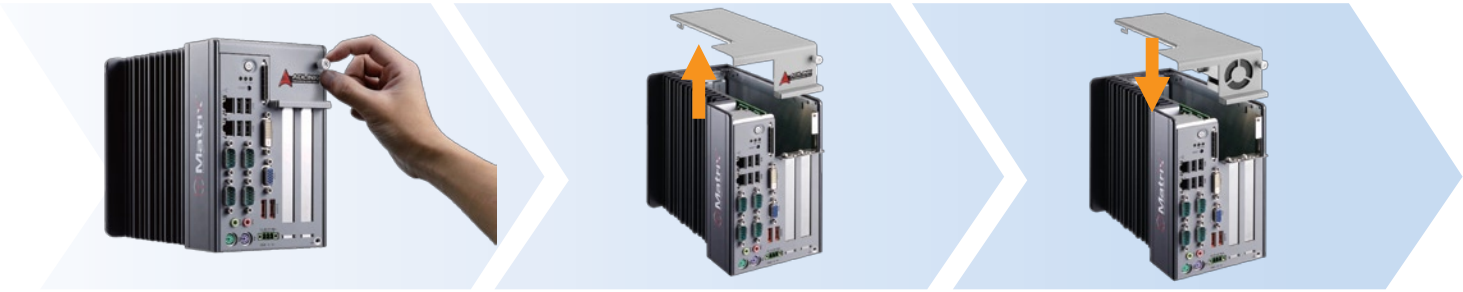
■ MXC-4000 Series Front Panel



■ Inside of the MXC-4000 Series


Air In-take Apertures with Filter
Proprietary Connector for Optional Fan Module Installation
2 PCI Slots for MXC-4002D /
1 PCI Slot + 1 PCIe Slot for MXC-4011D

■ Easy-to-install Hot-pluggable Fan Module



1. Undo the thumbscrew by hand
2. Withdraw the thumbscrew and remove the top cover
3. Replace it by plugging the hot-pluggable fan module cover into the fan connector on CPU board

*Extending the operating temperature to -10°C to +60°C is optional and requires use of an industrial solid-state drive storage device. Heat dissipation from inserted PCI/PCIe cards may affect thermal performance.

Specifications

Model Name	MXC-4002D	MXC-4011D
System Core		
Processor	Intel® Atom™ D510 1.66 GHz Dual-Core CPU	
Chipset	Intel® I/O Control Hub 8 Mobile (ICH8-M)	
Video	Analog CRT, supports QXGA (2048 X 1536) resolution 18-bit LVDS output by DVI-D connector for LCD panel	
Memory	1 GB DD2 667 MHz SODIMM module	
I/O Interface		
Expansion Slots	2 PCI slots	1 PCI slot and 1 PCIe x1 slot
Ethernet	2 GbE ports (Intel® 82574L)	
DIO	12-CH isolated DI + 12-CH isolated DO	
Serial Port	2 software-programmable RS-232/422/485 (COM1 & COM2) 2 RS-232 (COM3 & COM4)	
USB	4 USB 2.0 ports	
Audio	1 mic-in and 1 line-out	
KB/MS	1 PS/2 keyboard and 1 PS/2 mouse	
Power Supply		
DC Input	Built-in 9-32 VDC wide-range DC input with over-voltage protection 3P pluggable connector with latch (GND, V-, V+)	
AC Input	Optional 60 W external AC-DC adapter for AC input	
Storage Device		
SATA HDD	On-board SATA port for 2.5" HDD/SSD installation	
eSATA	2 eSATA interface connectors for external storage expansion	
CompactFlash	1 type II CF socket, supporting PIO and DMA modes for HDD replacement	
Mechanical		
Optional Fan Module	Optional, hot-pluggable fan module for dissipating heat generated by PCI/PCIe card	
Dimensions	118 mm (W) x 219 mm (D) x 183 mm (H) (4.6" x 8.6" x 7.2")	
Weight	2.8 kg (6.17 lbs)	
Mounting	Wall-mount kit	
Environmental		
Operating Temperature*	Standard: 0°C to 55°C (w/HDD) Extended option: -10°C to 60°C (w/industrial SSD)	
Storage Temperature	-40°C to 85°C (excl. HDD/SSD/CF)	
Humidity	~95% @ 40°C (non-condensing)	
Vibration	Operating, 5 Grms, 5-500 Hz, 3 axes (w/ CF or SSD) Operating, 0.5 Grms, 5-500 Hz, 3 axes (w/ HDD)	
Shock	Operating, 50 G, half sine 11 ms duration (w/ CF or SSD)	
EMC	CE and FCC Class A	

*Without PCI/PCIe card installation

Ordering Information

Model Name	Description	PCI	PCIe x1	GbE	eSATA	COM	USB	Memory	DIO
MXC-4002D	Intel® Atom™ D510 fanless expandable embedded computer	2	0	2	2	4	4	1 GB DDR2	12 DI+12 DO
MXC-4011D	Intel® Atom™ D510 fanless expandable embedded computer	1	1	2	2	4	4	1 GB DDR2	12 DI+12 DO

Optional Accessories

MXC-4000 Optional Fan Module	Hot-pluggable fan module for the MXC-4000 series
2 GB DDR2 Upgrade	Upgrade to 2 GB DDR2 memory
320 GB HDD Option	Factory-installed 320 GB SATA hard disk drive (0 to 60°C)
32 GB SSD Option	Factory-installed 32 GB SATA solid-state drive (0 to 70°C)
8 GB Industrial SSD Option	Factory-installed 8 GB industrial-grade SATA solid-state drive (-40 to 85°C)
80 W AC-DC Adapter	80 W industrial-grade AC-DC adapter (-20 to 70°C)
Extended Temperature Option*	Optional Screening to extend the operating temperature of the MXC-4000 series to -10°C to 60°C

*This option guarantees cold boot of the system at -10°C and operation with 100% loading at 60°C. The industrial solid-state drive storage option is required.

MXC-2000 Series

Intel® Atom™ Fanless Expandable Embedded Computer with PCI/PCIe Slots

MXC-2002/2011

Coming Soon

MXC-2012

Introduction

ADLINK's MXC-2000 series is an exceptionally fanless expandable embedded computer with configurable PCI and PCIe slots. It is designed to provide a reliable platform for a wide variety of applications by accepting standard PCI and PCIe cards. The MXC-2000 series can operate in a -20 to 70°C temperature range and withstands 5 Grms vibration. Its fanless and cable-less structure provides additional durability for long-term usage.

The MXC-2000 series features the Intel® Atom™ N270 1.6 GHz processor to deliver adequate performance at low power. Its PCI and PCIe slots enable the possibility of integrating off-the-shelf PCI/PCIe cards for a configurable application platform. Generic I/O interfaces, such as Gigabit Ethernet, COM, and USB are provided for connecting devices, while VGA+S-Video dual graphic outputs to allow connections to larger displays such as an LCD TV. The MXC-2000 series also integrates ADLINK in-house DIO design to deliver optional isolated DIO channels for industrial control usage.

ADLINK's MXC-2000 series is the perfect combination of configurability, reliability, durability, and compactness. With the MXC-2000 series, creating your rugged application system has never been easier.

Features

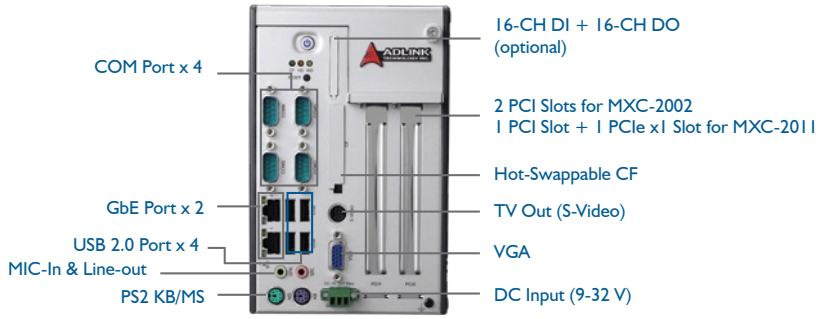
- Intel® Atom™ N270 1.6 GHz processor + 945GSE chipset
- Configurable, providing both PCI and PCIe slots options
  - 2 PCI Slots for MXC-2002
  - 1 PCI Slot + 1 PCIe x1 Slot for MXC-2011
  - 2 PCI Slot + 1 PCIe x4 Slot for MXC-2012
- Rugged, -20°C to 70°C fanless operation*
- Built-in wide-range DC power input
  - 9 VDC to 32 VDC for MXC-2002 and MXC-2011
  - 18 VDC to 36 VDC for MXC-2012
- Dual 1000/100/10 Mbps Ethernet ports
- Two RS-232 ports and two RS-232/422/485 ports
- Two CF sockets for HDD replacement and hot-swappable data storage
- VGA + S-Video independent dual display outputs
- Optional on-board 16-CH isolated DI and 16-CH isolated DO
- IEC-60945 maritime standards compliance (MXC-2012)

Applications

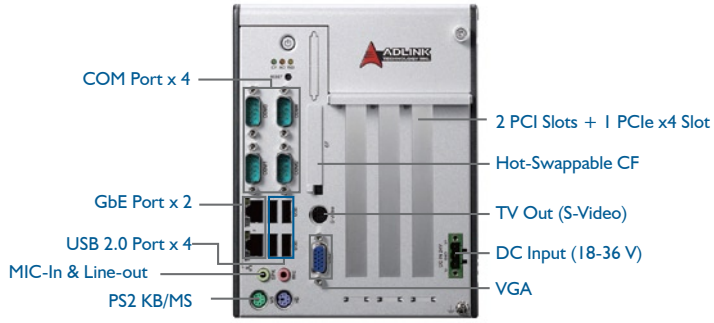
- Industrial Automation
- Factory Control
- Test Instrumentation
- Security Surveillance
- Data Acquisition System
- Building Automation
- Maritime Computer (MXC-2012)

Software Support

- Windows® CE6.0 / XP / XP Embedded / 7, Linux*
  *Linux Distribution by Request


COM Port x 4
GbE Port x 2
USB 2.0 Port x 4
MIC-In & Line-out
PS2 KB/MS
16-CH DI + 16-CH DO (optional)
2 PCI Slots for MXC-2002
1 PCI Slot + 1 PCIe x1 Slot for MXC-2011
Hot-Swappable CF
TV Out (S-Video)
VGA
DC Input (9-32 V)

MXC-2002/MXC-2011 Front Panel



MXC-2012 Front Panel

Easy Installation for HDD and PCI/PCIe Cards

*Extending the operating temperature to -20°C to +70°C is optional and requires use of an industrial solid-state drive storage device. Heat dissipation from inserted PCI/PCIe cards may affect thermal performance.

Specifications

Model Name	MXC-2002	MXC-2011	MXC-2012 Coming Soon
System Core			
Processor	Intel® Atom™ N270 1.6 GHz CPU		
Chipset	Intel® 945GSE Graphic Memory Control Hub Intel® I/O Controller Hub 7 Mobile (ICH7-M)		
Video	Analog CRT, supports QXGA (2048 x 1536) resolution TV-out, supports s-video		
Memory	1 GB DDR2 533 MHz SODIMM module		
I/O Interface			
Expansion Slots	2 PCI slots	1 PCI slot and 1 PCIe x1 slot	2 PCI slots and 1PCIe x4 slot
Ethernet	2 GbE ports (Realtek® 8111C)		
Serial Port	2 RS-232/422/485 (jumper selectable, COM1 & COM2) 2 RS-232 (COM3 & COM4)		
USB	4 USB 2.0 ports		
Audio	1 mic-in and 1 line-out		
KB/MS	1 PS/2 keyboard and 1 PS/2 mouse		
DIO	Optional 16-CH isolated DI + 16-CH isolated DO		
Power Supply			
DC Input	Built-in 9-32 VDC input with over-voltage protection 3P pluggable connector with latch (GND, V-, V+)		Built-in 18-36 VDC isolation DC input
AC Input	Optional 60 W external AC-DC adapter for AC input		Optional 100 W external AC-DC adapter for AC input
Storage Device			
SATA HDD	On-board SATA port for 2.5" HDD/SSD installation		
CompactFlash	2 type II CF Sockets, supporting PIO and DMA modes CF1 (internal) for HDD replacement CF2 (external) supports hot-swapping		
Mechanical			
Dimensions	118 mm (W) x 219 mm (D) x 183 mm (H) (4.6" x 8.6" x 7.2")		150 mm (W) x 219 mm (D) x 183 mm (H) (5.9" x 8.6" x 7.2")
Weight	2.8 kg (6.17 lbs)		3.1 kg (6.83 lbs)
Mounting	Wall-mount kit		
Environmental			
Operating Temperature*	Standard: 0°C to 60°C (w/HDD) Extended option: -20°C to 70°C (w/industrial SSD)		
Storage Temperature	-40°C to 85°C (excluding HDD/SSD/CF)		
Humidity	~95% @ 40°C (non-condensing)		
Vibration	Operating, 5 Grms, 5-500 Hz, 3 axes (w/CF or SSD) Operating, 0.7 Grms, 5-500 Hz, 3 axes (w/HDD)		
Shock	Operating, 50 G, half-sine 11 ms duration (w/CF or SSD)		
EMC	CE and FCC Class A		CE, FCC Class A IEC-60945 Compliance

Ordering Information

Model Name	Description	PCI	PCIe x1	PCIe x4	GbE	COM	USB	Memory	DIO	IEC-60945
MXC-2002	Intel® Atom™ N270 fanless expandable embedded computer	2	0	-	2	4	4	1 GB DDR2	-	-
MXC-2002D	Intel® Atom™ N270 fanless expandable embedded computer	2	0	-	2	4	4	1 GB DDR2	16 DI+16 DO	-
MXC-2011	Intel® Atom™ N270 fanless expandable embedded computer	1	1	-	2	4	4	1 GB DDR2	-	-
MXC-2011D	Intel® Atom™ N270 fanless expandable embedded computer	1	1	-	2	4	4	1 GB DDR2	16 DI+16 DO	-
MXC-2012	Intel® Atom™ N270 fanless expandable embedded computer	2	0	1	2	4	4	1 GB DDR2	-	v

Optional Accessories

2 GB DDR2 Upgrade	Upgrade to 2 GB DDR2 memory
320 GB HDD Option	Factory-installed 320 GB SATA hard disk drive (0 to 60°C)
32 GB SSD Option	Factory-installed 32 GB SATA solid-state drive (0 to 70°C)
8 GB Industrial SSD Option	Factory-installed 32 GB SATA solid-state drive (0 to 70°C)
63 W AC-DC Adapter	63 W industrial-grade AC-DC adapter (-20 to 70°C)
100 W AC-DC Adapter	100 W industrial-grade AC-DC adapter (-20 to 70°C)
Extended Temperature Option*	Optional Screening to extend the operating temperature of the MXC-2000 series to -20°C to 70°C

*This option guarantees cold boot of the system at -20°C and operation with 100% loading at 70°C. The industrial solid-state drive storage option is required.

MXE-5300 Series

Powerful 2nd Generation Intel® Core™ i7 Fanless Embedded Computer with High Performance Wireless Support

NEW

Introduction

The Matrix MXE-5300 is the latest addition to ADLINK's Matrix E series, based on the Intel® Core™ i7-2710QE quad-core processor, boosting performance by almost 150% with minimal increase in power consumption, and offering outstanding computing power tailored to a variety of specific application needs.

Featuring a new design simplifying system component replacement and maintenance, the MXE-5300 allows effortless access to storage, memory, and wireless modules. Leveraging proprietary mechanical engineering, the MXE-5300 series also retains all the popular features of the Matrix E series, including rugged -20 to 70°C fanless operation, 5 Grms vibration resistance, and 9-32V wide range DC input.

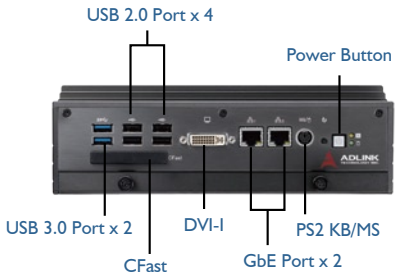
In addition, the MXE-5300 provides dual mini-PCIe sockets and a USIM socket supporting wireless protocols such as 3G, GPS, WiFi and Bluetooth. ADLINK's proprietary wireless enhancement technology empowers the MXE-5300 to deliver industrial-grade wireless performance.

The MXE-5300 accommodates Intel® Active Management 7.0, for remote system management, enabling users to easily perform maintenance, diagnostic, update, and even BIOS configuration tasks on the MXE-5300 via Ethernet connection.

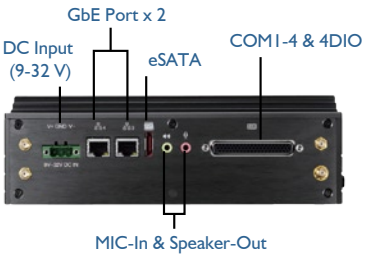
Combining superior processor performance, innovative mechanical design, superior wireless capability, and rich IO, all in a compact and robust package, the ADLINK MXE-5300 is an idea choice for a wide range of applications.

Features

- Intel® Core™ i7-2710QE (Quad-Core) / i5-2510E / i3-2330E Processor + Intel® QM67 chipset
- Rugged, up to -20°C to 70°C fanless operation (w/ industrial SSD)*
- Intel® Active Management Technology 7.0 support
- Optional wireless function enhancement (WCDMA, 802.11 a/b/g/n, BT3.0, AGPS)
- 1 onboard SATA-III (6.0 Gb/s) port
- 6 USB ports (USB 3.0 port x2 + USB 2.0 port x4), 4 DI + 4 DO w/ 1.5KV isolation, 4 GbE ports
- 1 external CFast socket; 2 onboard mini PCIe card sockets
- 2 software-programmable RS-232/422/485 (COM1&2), 2 RS-232 (COM3&4)



MXE-5300 Front Panel



MXE-5300 Back Panel

Applications

- Intelligent Transportation Systems
- Facility Management
- Building Automation Systems (BAS)
- Digital Surveillance
- In-vehicle Multimedia and Surveillance

MXE-5300 with Antenna

Software Support

- Windows® XP / XP Embedded / 7, Linux*
  *Linux Distribution by Request

■ An Ingenious Design for Easy Maintenance

1. Ready-to-deploy wall mount kit

2. One screw removable storage bracket

3. Flexible memory expansion slots

*Extending the operating temperature to -20°C to +70°C is optional and requires use of an industrial solid-state drive storage device.

Specifications

Model Name	MXE-5301	MXE-5302	MXE-5303
System Core			
Processor	Intel® Core™ i7-2710QE	Intel® Core™ i5-2510E	Intel® Core™ i3-2330E
Chipset	Intel® Mobile Platform Controller Hub (QM67)		
Video	VGA+DVI dual display output by DVI-I connector • Analog CRT, supports QXGA (2048 x 1536) resolution • DVI output, supports up to 1920 x 1080 resolution		
Memory	4 GB DDR3 1066 MHz SODIMM module (Up to 16 GB support)		
I/O Interface			
Ethernet	4 GbE ports (2 Realtek® 8111C + 1 Intel® 82574IT + 1 82579LM PHY)		
Serial Ports	2 software-programmable RS-232/422/485 (COM1 & COM2) 2 RS-232 (COM3 & COM4)		
USB	4 USB 2.0 ports & 2 USB 3.0 ports		
DIO	4 DIO w/ 1.5KV isolation		
Audio	1 mic-in and 1 speaker-out		
KB/MS	1 PS/2 keyboard and 1 PS/2 mouse (combo)		
Mini PCIe	2 internal PCIe mini card sockets		
USIM	1 USIM socket for 3G communication (used for a 3G-mini module)		
WDT	Supports a watchdog timer		
Power Supply			
DC Input	Built-in 9-32 V_{DC} wide-range DC input 3P pluggable connectors with latch (GND, V-, V+)		
AC Input	Optional 160 W external AC-DC adapter for AC input		
Storage Device			
SATA HDD	1 onboard SATA-III port for 2.5" HDD/SSD installation		
CompactFlash	1 CFast slot		
eSATA	1 eSATA interface connectors on rear panel for storage expansion		
Mechanical			
Dimensions	230 mm (W) x 205 mm (D) x 75 mm (H) (9" x 8" x 2.9")		
Weight	3.8 kg (8.39 lbs)		
Mounting	Wall-mount kit		
Environmental			
Operating Temperature*	Standard: 0°C to 50°C (w/HDD)		
	Extended Temperature: -20°C to 60°C (w/industrial SSD or CFast)	Extended Temperature: -20°C to 70°C (w/industrial SSD or CFast)	
Storage Temperature	-40°C to 85°C (excl. HDD/SSD/CFast)		
Humidity	~95% @ 40°C (non-condensing)		
Vibration	Operating, 5 Grms, 5-500 Hz, 3 axes (w/ CFast or SSD) Operating, 0.5 Grms, 5-500 Hz, 3 axes (w/ HDD)		
ESD	Contact +/-4 KV and Air +/-8 KV		
Shock	Operating, 50 G, half sine 11 ms duration (w/ CFast or SSD)		
EMC	CE and FCC Class A		

*Extending the operating temperature to -20°C to +70°C is optional and requires use of an industrial solid-state drive storage device.

Ordering Information

Model Name	Description	DIO	COM Ports	GbE	USB	Memory
MXE-5301	Intel® Core™ i7 fanless embedded computer	4 DI & 4DO w/1.5KV isolation	2 RS-232/422/485, 2 RS-232	4	6	4 GB DDR3
MXE-5302	Intel® Core™ i5 fanless embedded computer	4 DI & 4DO w/1.5KV isolation	2 RS-232/422/485, 2 RS-232	4	6	4 GB DDR3
MXE-5303	Intel® Core™ i3 fanless embedded computer	4 DI & 4DO w/1.5KV isolation	2 RS-232/422/485, 2 RS-232	4	6	4 GB DDR3

Optional Accessories

8 GB DDR3 Upgrade	Upgrade to 8 GB DDR3 memory
320 GB HDD Option	Factory-installed 320 GB SATA hard disk drive (0 to 50°C)
8 GB/32 GB/64 GB SSD Option	Factory-installed of 8 GB/ 32 GB SLC type or 64 GB MLC type industrial-grade SATA solid state disk (-40 to 85 °C)
160 W AC-DC Adapter	160 W industrial-grade AC-DC adapter (-20 to 70°C)
Wireless Module Option	3G/WiFi/BT/GPS wireless modules
RF Matching Module Option	3G/WiFi/BT/GPS performance enhancement with RF Matching Module
Extended Temperature Option*	Optional screening to extend the operating temperature of the MXE-5301 to -20 to 60°C and MXE-5302/MXE-5303 to -20 to 70°C

*This option guarantees system cold boot at -20°C and operation at 100% load at 70°C, with industrial solid-state drive storage option required.

MXE-5000 Series

Performance Intel® Core™2 Duo Marine Grade Fanless Embedded Computer

MXE-5104M

MXE-5104

Introduction

ADLINK's MXE-5000 series is an exceptionally rugged embedded computer for operating in harsh environments. Its -20 to 70°C temperature range allows it to operate outdoors in both hot summer days and cold winter nights. The MXE-5000 can withstand 5 Grms vibration and can also be deployed in factory plants or on vehicles as. Its fanless and cable-less structure ensures extensive durability for long-term usage.

The MXE-5000 series features the Intel® Core™2 Duo P8400 2.26 GHz processor to deliver adequate performance at low-power. The MXE-5000 also integrates versatile general purpose and dedicated I/O features to support a wide variety of applications. Combing rugged design, integrated I/O functions, and IEC-60945 maritime standards compliance, the ADLINK MXE-5000 series provides a versatile choice for your applications.

Features

- Intel® Core™2 Duo P8400 2.26 GHz processor + Intel® GM45
- Rugged, -20°C to 70°C fanless operation*
- Built-in 9 V_{DC} to 24 V_{DC} wide-range DC power input
- Up to four 1000/100/10 Mbps Ethernet ports
- Two RS-232 ports and two RS 232/422/485 ports
- Six USB 2.0 ports
- DVI-I connector combining analog CRT and DVI-D signals, supporting dual displays
- IEC-60945 maritime standards compliance (MXE-5104)

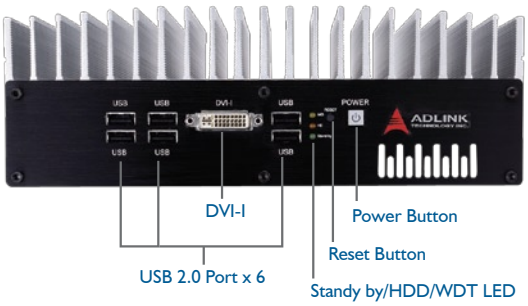
Applications

- Maritime Computer
- Facility Management
- Environment Monitoring
- Machine Automation
- Video Surveillance/Recognition
- Transportation

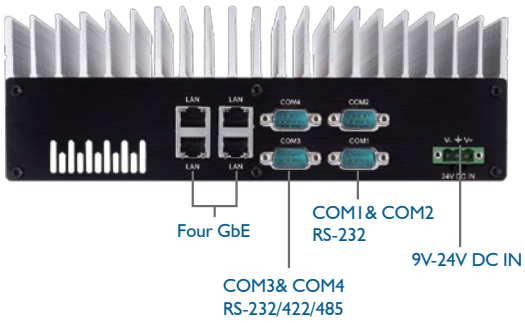
Software Support

- Windows® XP / XP Embedded / 7, Linux*

*Linux Distribution by Request



MXE-5104M Front Panel



MXE-5104M Back Panel

MXE-5104 Back Panel

*Extending the operating temperature to -20°C to +70°C is optional and requires use of an industrial solid-state drive storage device.

Specifications

Model Name	MXE-5104M	MXE-5104
System Core		
Processor	Intel® Core™2 Duo P8400 2.26 GHz CPU	
Chipset	Intel® GM45 Graphic Memory Control Hub Intel® I/O Controller Hub 9 Mobile (ICH9-M)	
Video	DVI-I connector Combines analog CRT and DVI-D signals, supports dual displays	
Memory	2 GB DDR3 SODIMM 2 sockets (supports up to 4 GB DDR3)	2G DDR3 SODIMM 1 Socket (support up to 4GB DDR3)
I/O Interface		
Serial Port	2 RS-232 (COM1 & COM2) via DB9 connectors 2 RS-232/422/485 (COM3 & COM4) via DB9 connectors	
Ethernet	4 GbE ports (2 Intel® 82574L & 2 Realtek® 8111C)	
USB	6 USB 2.0 ports	
Power Supply		
DC Input	Built-in 9-24 VDC DC input 3P pluggable connector with latch (V-, GND, V+)	24V isolation DC input 3P pluggable connector with latch (V-, GND, V+)
AC Input	Optional 100 W external AC-DC adapter for AC input	
Storage Device		
SATA HDD	On-board SATA port for 2.5" HDD/SSD installation	
Mechanical		
Dimensions	248 mm (W) x 185 mm (D) x 85 mm (H) (9"8 x 7"3 x 3.3")	
Weight	3.7 kg (8.14 lbs)	
Mounting	Wall-mount kit	
Environmental		
Operating Temperature*	Standard: 0°C to 50°C (w/HDD) Extended option: -20°C to 70°C (w/industrial SSD)	
Storage Temperature	-40°C to 85°C (excl. HDD/SSD/CF)	
Humidity	~95% @ 40°C (non-condensing)	
Vibration	Operating, 5 Grms, 5-500 Hz, 3 axes (w/ CF or SSD) Operating, 0.5 Grms, 5-500 Hz, 3 axes (w/ HDD)	
Shock	Operating, 50 G, half sine 11 ms duration (w/ CF or SSD)	
EMC	CE and FCC Class A	CE, FCC Class A and IEC-60945 compliance

*Extending the operating temperature to -20°C to +70°C is optional and requires use of an industrial solid-state drive storage device.

Ordering Information

Model Name	Description	IEC-60945 compliance	GbE	COM	USB	Memory
MXE-5104M	Intel® Core™2 Duo Fanless Embedded Computer	-	4	2 RS-232, 2 RS-232/422/485 ports	6	2 GB DDR3 SO-DIMM
MXE-5104	Intel® Core™2 Duo Maritime Fanless Embedded Computer	√	4	2 RS-232, 2 RS-232/422/485 ports	6	2 GB DDR3 SO-DIMM

Optional Accessories

4 GB DDR3 Upgrade	Upgrade to 4 GB DDR3 memory
320 GB HDD Option	Factory-installed 320 GB SATA hard disk drive (0 to 60°C)
32 GB SSD Option	Factory-installed 32 GB SATA solid-state drive (0 to 70°C)
8 GB Industrial SSD Option	Factory-installed 8 GB industrial-grade SATA solid-state drive (-40 to 85°C)
100 W AC-DC Adapter	100 W industrial-grade AC-DC adapter (-20 to 70°C)
Extended Temperature Option*	Optional Screening to extend the operating temperature of the MXE-5000 series to -20°C to 70°C

*This option guarantees cold boot of the system at -20°C and operation with 100% loading at 70°C. The industrial solid-state drive storage option is required.

MXE-3000 Series

Intel® Atom™ D510 Fanless Embedded Computer with Integrated I/O

Introduction

The Matrix MXE-3000 series is the latest addition to the ADLINK's Matrix E series. It is based on the Intel® Atom™ D510 dual-core processor to offer greater computing power for your applications. The MXC-3000 series features an Intel® Atom™ D510 dual-core 1.66 GHz processor to boost its performance to almost twice that of the Atom™ N270 platform, while maintaining the same power consumption. This distinctive feature delivers to the ability to access multiple devices using a compact and rugged controller without the need for additional serial communication cards.

Leveraging the design of the Matrix MXE-1000 series, the MXE-3000 series retains all the remarkable features of the Matrix E series, including rugged -20°C to 70°C* fanless operation, 5 Grms vibration resistance, and 9-32 VDC wide range power input. The design of serial ports is also flexible to meet the needs of a wide variety of applications. Two COM ports can be configured to RS-232, RS-422, or RS-485 via a BIOS setting. The MXE-3000 series is also equipped with a mini-PCIe socket, USIM socket, six USB 2.0 ports, and its fanless and cable-less structure gives you extensive durability for long-term usage.

Combing rugged design and integrated I/O functions, the ADLINK MXE-3000 series provides the best choice for your versatile applications.

Features

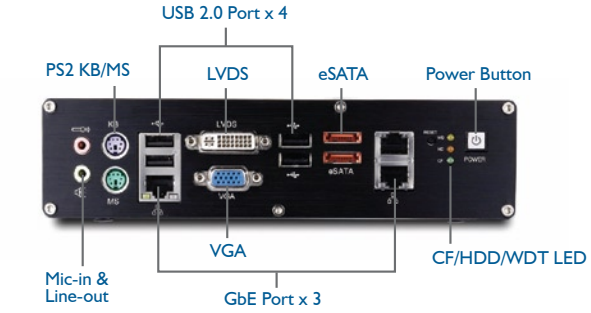
- Intel® Atom™ D510 1.66 GHz processor + Intel® ICH8-M chipset
- Rugged, -20°C to 70°C fanless operation*
- Built-in 9 VDC to 32 VDC wide-range DC power input
- Two software-programmable RS-232/422/485 ports, and two RS-232 ports
- Up to three 1000/100/10 Mbps Ethernet ports
- Up to six USB 2.0 ports
- One internal PCIe Mini Card socket and USIM socket
- One external CF socket

Applications

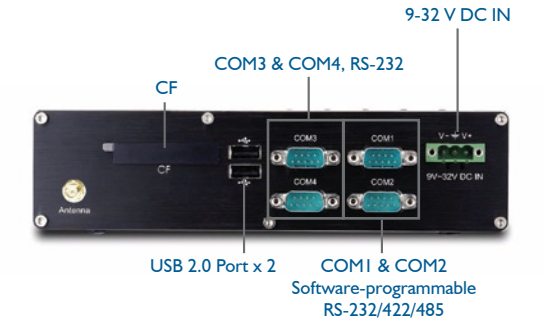
- Toll Gate Controllers
- Smart Grid Applications
- Intelligent Transportation Systems
- Facility Management
- Medication Management
- Pharmacy Automation
- Environmental Monitoring
- Building Automation

Software Support

- Windows® XP / XP Embedded / 7, Linux*
  *Linux Distribution by Request



MXE-3000 Front Panel



MXE-3000 Back Panel

MXE-3000 with Antenna

*Extending the operating temperature to -20°C to 70°C is optional and requires use of an industrial solid-state drive storage device.

Specifications

Model Name	MXE-3002
System Core	
Processor	Intel® Atom™ D510 1.66 GHz CPU
Chipset	Intel® I/O Controller Hub 8 Mobile (ICH8-M)
Video	VGA+LVDS output by VGA+DVI-I stacked connector • Analog CRT, supports QXGA (2048 x 1536) resolution • 18-bit LVDS output by DVI-I connector
Memory	1 GB DDR2 667 MHz SODIMM module
I/O Interface	
Ethernet	3 GbE ports (1 Realtek® 8111C + 2 Intel® 82574L)
Serial Port	2 software-programmable RS-232/422/485 (COM1 & COM2) 2 RS-232 (COM3 & COM4)
USB	6 USB 2.0 ports
Audio	1 mic-in and 1 line-out
KB/MS	1 PS/ 2 keyboard and 1 PS/ 2 mouse
Mini PCIe	1 internal PCIe mini card socket
USIM	1 USIM socket for 3G communication (used for a 3G-mini module)
Power Supply	
DC Input	Built-in 9-32 VDC wide-range DC input 3P pluggable connector with latch (GND, V-, V+)
AC Input	Optional 80 W external AC-DC adapter for AC input
Storage Device	
SATA HDD	On-board SATA port for 2.5" HDD/SSD installation
CompactFlash	1 type II CF socket, supporting PIO and DMA modes
eSATA	2 eSATA interface connectors on front panel for storage expansion
Mechanical	
Dimensions	210 mm (W) x 170 mm (D) x 53 mm (H) (8.3" x 6.7" x 2.1")
Weight	1.8 kg (3.97 lbs)
Mounting	Wall-mount kit
Environmental	
Operating Temperature*	Standard: 0°C to 50°C (w/HDD) Extended option: -20°C to 70°C (w/ industrial SSD)
Storage Temperature	-40°C to 85°C (excl. HDD/SSD/CF)
Humidity	~95% @ 40°C (non-condensing)
Vibration	Operating, 5 Grms, 5-500 Hz, 3 axes (w/ CF or SSD) Operating, 0.5 Grms, 5-500 Hz, 3 axes (w/ HDD)
ESD	Contact +/-4 KV and Air +/-8 KV
Shock	Operating, 100 G, half sine 11 ms duration (w/ CF or SSD)
EMC	CE and FCC Class A

*Extending the operating temperature to -20°C to +70°C is optional and requires use of an industrial solid-state drive storage device.

Ordering Information

Model Name	Description	COM Ports	GbE	USB	Memory
MXE-3002	Intel® Atom™ D510 1.66 G fanless embedded computer	2 RS-232/422/485 2 RS-232	3	6	1 GB DDR2

Optional Accessories

2 GB DDR2 Upgrade	Upgrade to 2 GB DDR2 memory
320 GB HDD Option	Factory-installed 320 GB SATA hard disk drive (0 to 60°C)
32 GB SSD Option	Factory-installed 32 GB SATA solid-state drive (0 to 70°C)
8 GB industrial SSD Option	Factory-installed 8 GB industrial-grade SATA solid-state drive (-40 to 85°C)
80 W AC-DC adapter	80 W industrial-grade AC-DC adapter (-20 to 70°C)
Extended Temperature Option*	Optional Screening to extend the operating temperature of the MXE-3000 series to -20°C to 70°C

*This option guarantees cold boot of the system at -20°C and operation with 100% loading at 70°C. The industrial solid-state drive storage option is required.

MXE-1200 Series

Intel® Atom™ N270 Fanless Embedded Computer with 12 COM Ports

Introduction

ADLINK's MXE-1200 is based on the Intel® Atom™ N270 1.6 GHz processor and provides 12 serial ports for device communication and control. This distinctive feature delivers to the ability to access multiple devices using a compact and rugged controller without the need for additional serial communication cards.

Leveraging the design of the Matrix MXE-1000 series, the MXE-1200 series retains all the remarkable features of the Matrix E series, including rugged -20 to 70°C fanless operation, 5 Grms vibration resistance, and 6-36 VDC wide range power input. The design of serial ports is also flexible to meet the need of a wide variety of applications. Two of the 12 COM ports can be configured to RS-232, RS-422 or RS-485 via a BIOS setting. Two of the 12 COM ports are RS-232 COM Ports (COM3 & COM4). The remaining eight COM ports are either RS-232 (MXE-1212/232), RS-422 (MXE-1212/422) or RS-485 (MXE-1212/485). The MXE-1200 series is also equipped with a mini-PCIe socket, USIM socket to support expansion of wireless communication capabilities.

Combining reliability, compactness, and a unique feature of 12 COM ports, the MXE-1200 series is the perfect fit for communicating with external devices which will greatly benefit many applications such as toll gate control (RS-232), automatic fare collection systems (RS-232), and smart grid (RS-422/485).

Features

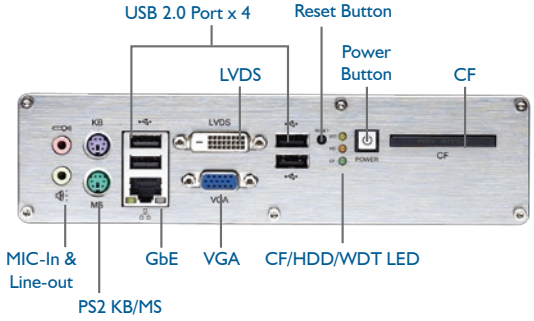
- Intel® Atom™ N270 1.6 GHz processor + 945GSE chipset
- Rugged, -20°C to 70°C fanless operation*
- Provides 12 COM ports
  - Two software-programmable RS-232/422/485 ports (COM1 & COM2)
  - Two RS-232 ports (COM3 & COM4)
  - 8 RS-232 ports (MXE-1212/232), 8 RS-422 ports (MXE-1212/422), 8 RS-485 ports (MXE-1212/485)
- Built-in 6 V_{DC} to 36 V_{DC} wide-range DC power input
- One 1000/100/10 Mbps Ethernet port
- One internal PCIe mini card socket and USIM socket
- One external CF socket

Applications

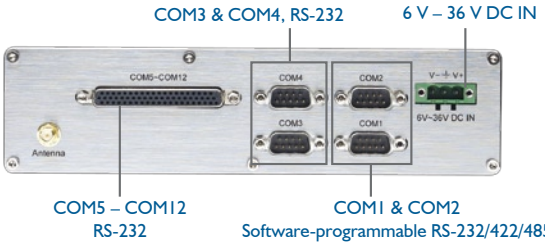
- Toll Gate Controllers
- Smart Grid Applications
- Intelligent Transportation Systems
- Facility Management
- Environmental Monitoring
- Building Automation

Software Support

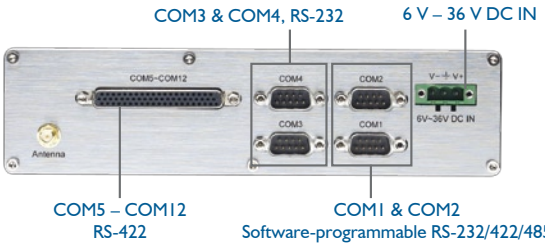
- Windows® CE6.0 / XP / XP Embedded / 7



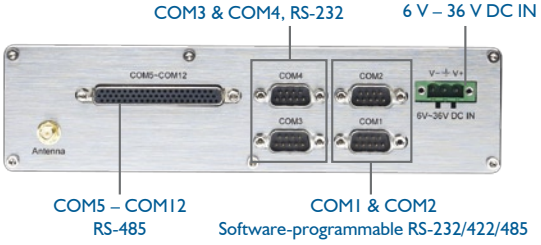
MXE-1200 Series Front Panel



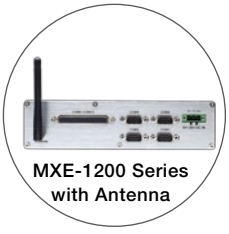
MXE-1212/232 Back Panel



MXE-1212/422 Back Panel



MXE-1212/485 Back Panel



MXE-1200 Series with Antenna

*Extending the operating temperature to -20°C to +70°C is optional and requires use of an industrial solid-state drive storage device.

Specifications

Model Name		MXE-1212/232	MXE-1212/422	MXE-1212/485
System Core				
Processor		Intel® Atom™ N270 1.6 GHz CPU		
Chipset		Intel® 945GSE Graphic Memory Control Hub Intel® I/O Controller Hub 7 Mobile (ICH7-M)		
Video		Analog CRT, supports QXGA (2048 X 1536) resolution 18-bit LVDS output by DVI-D connector for LCD panel		
Memory		1 GB DDR2 533 MHz SODIMM module		
I/O Interface				
Serial Port	COM1 & COM2	2 software-programmable RS-232/422/485 by DB9 connectors		
	COM3 & COM4	2 RS-232 by DB9 connectors	2 RS-232 by DB9 connectors	2 RS-232 by DB9 connectors
	COM5 - COM12	8 RS-232 by DB62 connectors	8 RS-422 by DB62 connectors	8 RS-485 by DB62 connectors
Ethernet		1 GbE port (Realtek® 8111C)		
USB		4 USB 2.0 ports		
Mini-PCIe		1 internal PCIe mini card socket		
USIM		1 USIM socket for 3G communication (used for a 3G mini-PCIe module)		
Audio		1 mic-in and 1 line-out		
KB/MS		1 PS/2 keyboard and 1 PS/2 mouse		
Power Supply				
DC Input		Built-in 6-36 Vdc wide-range DC input 3P pluggable connector with latch (V-, GND, V+)		
AC Input		Optional 40 W external AC-DC adapter for AC input		
Storage Device				
SATA HDD		On-board SATA port for 2.5" HDD/SSD installation		
CompactFlash		1 type II CF socket, supporting PIO and DMA modes for HDD replacement		
Mechanical				
Dimensions		210 mm (W) x 170 mm (D) x 54 mm (H) (8.3" x 6.7" x 2.1")		
Weight		1.9 kg (4.19 lbs)		
Mounting		VESA 100 mounting kit for wall-mount		
Environmental				
Operating Temperature*		Standard: 0°C to 50°C (w/HDD) Extended option: -20°C to 70°C (w/industrial SSD)		
Storage Temperature		-40°C to 85°C (excl. HDD/SSD/CF)		
Humidity		~95% @ 40°C (non-condensing)		
Vibration		Operating, 5 Grms, 5-500 Hz, 3 axes (w/ CF or SSD) Operating, 0.5 Grms, 5-500 Hz, 3 axes (w/ HDD)		
Shock		Operating, 100 G, half sine 11 ms duration (w/ CF or SSD)		
EMC		CE and FCC		

*Extending the operating temperature to -20°C to +70°C is optional and requires use of an industrial solid-state drive storage device.

Ordering Information

Model Name	Description	COM Ports	GbE	USB	Memory
MXE-1212/232	Intel® Atom™ N270 fanless embedded computer	2 RS-232/422/485 10 RS-232	1	4	1 GB DDR2
MXE-1212/422	Intel® Atom™ N270 fanless embedded computer	2 RS-232/422/485 2 RS-232, 8 RS-422	1	4	1 GB DDR2
MXE-1212/485	Intel® Atom™ N270 fanless embedded computer	2 RS-232/422/485 2 RS-232, 8 RS-485	1	4	1 GB DDR2

Optional Accessories

2 GB DDR2 Upgrade	Upgrade to 2 GB DDR2 memory
320 GB HDD Option	Factory-installed 320 GB SATA hard disk drive (0 to 50°C)
32 GB SSD Option	Factory-installed 32 GB & Intel 40 GB SATA solid-state drive (0 to 70°C)
8 GB Industrial SSD Option	Factory-installed 8 GB industrial-grade SATA solid-state drive (-40 to 85°C)
40 W AC-DC Adapter	40W industrial-grade AC-DC adapter (-20 to 70°C)
Extended Temperature Option*	Optional Screening to extend the operating temperature of the MXE-1200 series to -20°C to 70°C

*This option guarantees cold boot of the system at -20°C and operation with 100% loading at 70°C. The industrial solid-state drive storage option is required.

MXE-1000 Series

Intel® Atom™ Fanless Embedded Computer with Integrated I/O

Introduction

ADLINK's MXE-1000 series is an exceptionally rugged embedded computer for operating in harsh environments. Its -20 to 70°C* temperature range allows it to operate outdoors in both hot summer days and cold winter nights. The Matrix can also be deployed in factory planes or on vehicles as it can withstand 5 Grms vibration. And, its fanless and cable-less structure ensures extensive durability for long-term usage.

The MXE-1000 series features the Intel® Atom™ N270 1.6 GHz processor to deliver adequate performance at low-power. The MXE-1000 also integrates versatile generic and special-purpose I/O features to support a wide variety of applications. The on-board Gigabit Ethernet and 1394b ports are designed for connecting cameras for surveillance and image recognition applications, while its COM ports fit requirements in most machine automation and facility management applications.

Combing rugged design and integrated I/O functions, the ADLINK MXE-1000 series offers the most versatile choice for your applications.

Features

- Intel® Atom™ N270 1.6 GHz processor + 945GSE chipset
- Rugged, -20°C to 70°C fanless operation*
- Built-in 6 VDC to 36 VDC wide-range DC power input
- Up to three 1000/100/10 Mbps Ethernet ports
- Two 1394b FireWire ports (MXE-1020 only)
- Two RS-232 ports and two RS-232/422/485 ports
- One internal PCIe Mini Card socket with an USIM socket
- One external CF socket

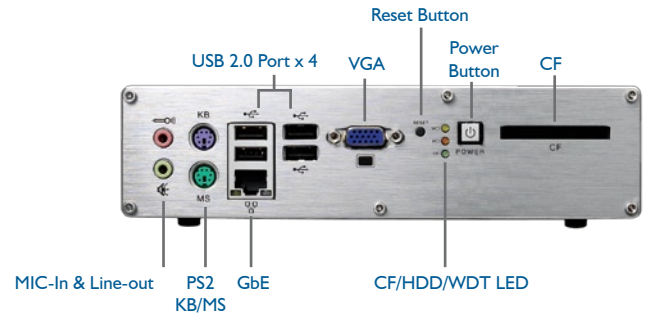
Applications

- Intelligent Transportation
- Facility Management
- Environment Monitoring
- Machine Automation
- Video Surveillance/Recognition
- Building Automation

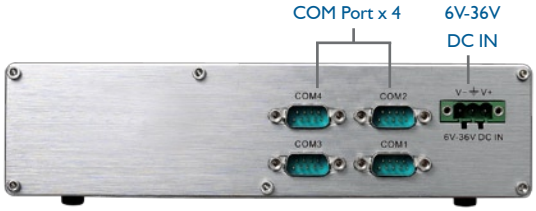
Software Support

- Windows® CE6.0 / XP / XP Embedded / 7, Linux*
  *Linux Distribution by Request

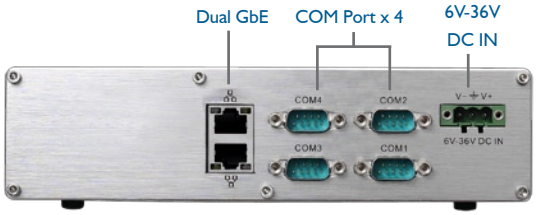
Inside MXE-1000 Series



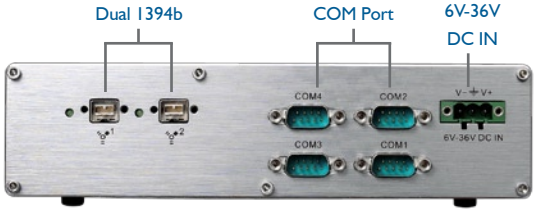
MXE-1000 Series Front Panel



MXE-1005 Back Panel



MXE-1010 Back Panel



MXE-1020 Back Panel

*Extending the operating temperature to -20°C to +70°C is optional and requires use of an industrial solid-state drive storage device.

Specifications

Model Name	MXE-1005	MXE-1010	MXE-1020
System Core			
Processor	Intel® Atom™ N270 1.6 GHz CPU		
Chipset	Intel® 945GSE Graphic Memory Control Hub Intel® I/O Controller Hub 7 Mobile (ICH7-M)		
Video	Analog CRT, supports QXGA (2048 x 1536) resolution		
Memory	1 GB DDR2 533 MHz SODIMM module		
I/O Interface			
Ethernet	1 GbE port (Realtek® 8111C)	3 GbE ports (Realtek® 8111C+Intel® 82574) (support teaming function)	1 GbE port (Realtek® 8111C)
1394b	-	-	2 1394b FireWire 800 ports
Serial Port	2 RS-232/422/485 (jumper selectable, COM1 & COM2) 2 RS-232 (COM3 & COM4)		
USB	4 USB 2.0 ports		
Mini-PCIe	1 internal PCIe mini card socket		
USIM	1 USIM socket for 3G communication (used with 3G Mini-PCIe module)		
Audio	1 mic-in and 1 line-out		
KB/MS	1 PS/2 keyboard and 1 PS/2 mouse		
Power Supply			
DC Input	Built-in 6-36 VDC wide-range DC input 3P pluggable connector with latch (V-, GND, V+)		
AC Input	Optional 40 W external AC-DC adapter for AC input		
Storage Device			
SATA HDD	On-board SATA port for 2.5" HDD/SSD installation		
CompactFlash	1 type I CF socket, supporting PIO and DMA modes		
Mechanical			
Dimensions	210 mm (W) x 170 mm (D) x 53 mm (H) (8.3" x 6.7" x 2.1")		
Weight	1.8 kg (3.97 lbs)		
Mounting	VESA 100 wall mounting kit		
Environmental			
Operating Temperature*	Standard: 0°C to 50°C (w/HDD) Extended option: -20°C to 70°C (w/industrial SSD)		
Storage Temperature	-40°C to 85°C (excluding HDD/SSD/CF)		
Humidity	~95% @ 40°C (non-condensing)		
Vibration	Operating, 5 Grms, 5-500 Hz, 3 axes (w/ CF or SSD) Operating, 0.7 Grms, 5-500 Hz, 3 axes (w/ HDD)		
Shock	Operating, 100 G, half-sine 11 ms duration (w/ CF or SSD)		
EMC	CE and FCC Class A		

*Extending the operating temperature to -20°C to +70°C is optional and requires use of an industrial solid-state drive storage device.

Ordering Information

Model Name	CPU	GbE	1394b	COM	USB	Memory
MXE-1005	Intel® Atom™ N270 fanless embedded computer	1	-	4	4	1 GB DDR2
MXE-1010	Intel® Atom™ N270 fanless embedded computer	3	-	4	4	1 GB DDR2
MXE-1020	Intel® Atom™ N270 fanless embedded computer	1	2	4	4	1 GB DDR2

Optional Accessories

2 GB DDR2 Upgrade	Upgrade to 2 GB DDR2 memory
160 GB HDD Option	Factory-installed 160 GB SATA hard disk drive (0 to 60°C)
32 GB SSD Option	Factory-installed 32 GB SATA solid-state drive (0 to 70°C)
8 GB Industrial SSD Option	Factory-installed 8 GB industrial-grade SATA solid-state drive (-40 to 85°C)
40 W AC-DC Adapter	40 W industrial-grade AC-DC adapter (-20 to 70°C)
Extended Temperature Option*	Optional Screening to extend the operating temperature of the MXE-1000 series to -20°C to 70°C

*This option guarantees cold boot of the system at -20°C and operation with 100% loading at 70°C. The industrial solid-state drive storage option is required.

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